TECHNOLOGY DEPT.

'It's Important to Know In Time'

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The Newspaper of the Industry

Air Conditioning & Refrigeration News

Production Tools for Victory

An International Institution ★ Subscribers All over the World ★

Technical Governmental

'Written Today To Be Read on Arrival'

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PUBLIC LIBRARY SEP 1 2 1942 DETROIT

Stores to Give Up Compressors For War Work?

'Wall Street Journal' Story Tells Plans to Use Conditioners

WASHINGTON, D. C. — Rumors that have been flying thick and fast here to the effect that the government might borrow refrigerating machinery used for comfort cooling, for use in such necessary war projects as synthetic rubber production, ship refrigeration, etc., burst into the open with the publication, in the Aug. 22 issue of the "Wall Street Journal," of a story to the effect that an order L-195 was in the WPB works to effect such action.

No confirmation of this story has been obtainable from any official sources, and there are some who declare it still to be "very much of a rumor." But here's the story for what it's worth:

Stores May Be Asked To Give Up Their Air-Cooling Plants

Army and Navy Want the Equipment For Submarines, Ships and Blackout Arms Factories

From The Wall Street Journal Washington Bureau

WASHINGTON, D. C.—The days of cool shopping tours in air conditioned stores may be numbered.

Air conditioning machinery in retail stores of all kinds is being surveyed with a covetous eye by the War Production Board. The Army and Navy wants the refrigeration equipment for submarines, surface ships, blackout war plants and for temperature control in the manufacture of strategic materials such as synthetic rubber.

The demand is greater than the supply of this equipment and a WPB order is being prepared which calls for restriction on the use of existing air conditioning machinery in stores.

The order, L-195, however, is causing a special brand of hubbub both in and out of the War Production Board and there is no telling when it will finally be used.

Whether because of the threat of the impending order or for strictly patriotic reasons, some stores have offered their equipment to the government. American Retailers Federation officials in Washington are understood to have notified the WPB that some stores have expressed a willingness to relinquish their air conditioning systems.

Many stores, however, are still to be heard from. It was reported by one source that Lessing Rosenwald, retired chairman of the board of Sears,

(Concluded on Page 21, Column 2)

'Steel Scare' Leaves Things Up in the Air

WASHINGTON, D. C.—The "great steel scare"—in which all civilian use of steel was to be denied—has come and gone, leaving in its wake the confusion and insecurity which follows so many government utterances.

The commotion began when the Conservation and Substitution Branch of the Conservation Division of the WPB issued its fifth provisional report on relative scarcity of certain materials. Materials were listed in three groups, ranked on the availability of existing supplies.

Group I "Materials of which the supplies are inadequate for war and most essential uses" included steel, zinc, and copper. Then further on in the news release issued with the report was the statement:

"Civilian industry, however essential the material may be to it, is or has been denied the use of items in Group I, and must accordingly use substitutes."

The press picked this official re-

(Concluded on Page 21, Column 1)

The Case for Civilian Supply

IT'S NO SKIN OFF THE NOSE of manufacturers in the refrigeration industry if little or no new refrigeration equipment is allocated to civilian use in the coming year. Most of them are well fortified with war contracts. As a matter of fact, from a purely selfish standpoint, the less of their output devoted to Civilian Supply next year, the better will be their post-war market.

Furthermore, the remaining distributors in the business are rapidly becoming supply houses for war plants and cantonments.

Surely, then, nobody can accuse us of partisanship or "business as usual" if we consider for a moment what strangulation of the civilian supply of refrigeration equipment might do to an America at war. The only axe we have to grind is the welfare of the American people who have "inherited" the burden of winning the war.

Let's start with the ABC's. Catechism:

What does refrigeration do for civilians?

It prevents food spoilage.

What makes unrefrigerated food spoil?

Bacteria (germs).

Aside from wasting food—which is bad enough, especially in time of war—what harm do bacteria in food cause?

Disease. Among the serious diseases spread by bacteria in unrefrigerated foods are typhoid, dysentery, cholera, trichinosis, amebiasis, tapeworm, botulism, and "ptomaine" poisoning.

What is the relation of refrigeration to these diseases?

Competent medical authorities give the widespread adoption of adequate refrigeration throughout the United States during the last two decades the major credit for the control of these diseases here.

What would happen if our system of refrigeration "from cow to consumer" broke down?

Epidemics, most likely.

Couldn't medical science whip these epidemics?

Not without adequate refrigeration facilities, and certainly not with a large proportion of our doctors in uniform, away from their communities.

Who would suffer most from these epidemics?

Women and children, and the hard-working laborers in our war plants, who are now consuming greater quantities of food than ever before.

Serious epidemics couldn't really happen here, could they?

Remember what the French used to say about the German army? And how we all used to laugh off the Japanese?

What, pray tell, have the Germans and Japs got to do with refrigeration and epidemics?

Well, people who knew the military strength and intentions of the Nipponazis warned us in plenty of time to prepare. We were too busy to pay any attention to their outcries. We laughed them off as calamity howlers. And now look at the fix we're in because we didn't prepare while yet we had time. People who know the facts are now warning us that if we don't make provision for

(Concluded on Page 6)

Jobber's Experience Decries Claim That Present Ratings Are Sufficient

DETROIT—The controversy which has carried through the news columns of the past several issues of AIR CONDITIONING & REFRIGERATION NEWS over the point of whether or not the assistance granted by ratings under P-126 and PD-1X are at all sufficient to supply repair parts for essential refrigeration systems, flares up again this week in communications from an eastern refrigeration supplies jobber, and a valve and controls manufacturer.

These letters point out that the restraining orders and other difficulties placed in the path of priorities granted for refrigeration parts, make it virtually impossible for parts to be obtained under the ratings now being granted under P-126 and PD-1X.

The jobber's letter is in the nature of a reply to the article in the Aug. 24 Bulletin Issue, in which a WPB official contended that supply firms were merely too lazy to make proper priority application for needed inventories.

Answers the jobber:

"The article in the Aug. 24 issue entitled 'Suppliers Urged to Use Own Priorities' has been read and I have the following comments to make regarding the WPB official who furnished you with your information.

"We have been applying for high priorities on PD-1X and all other forms previously issued for the use of suppliers, and have been unsuccessful in securing any higher than an A-3. We have been and still are filling orders on all materials that we have in stock on anything from A-10 up. Many of our suppliers in the manufacturing field have refused to ship merchandise containing brass or copper on anything under an A-1-k.

"'On the latest PD-1X which we received, we sent a detailed specification letter along telling what each manufacturer demanded in the line of priorities, giving the source of supply, etc. For example, it is impossible to secure any refrigeration gauges for service repair men without an A-1-k or better. A letter to this effect was attached to our PD-1X application—the priority assigned was A-9.

"We advised in three consecutive PD-1X applications that the Texas Co. was demanding an A-2 for oil in 5 and 1 gallon lots because of

(Concluded on Page 24, Column 1)

Industry's Branch Dissolved; Put Into Industrial Equipment Branch

75% of Industry Production Going Into War Uses

DETROIT—The commercial refrigeration and air conditioning industry has gone to War.

Not in that it has been ordered to make guns, bullets, or airplanes. But by virtue of the fact that the industry is devoting 75% of the production of its normal peacetime products to the War Effort.

At the same time, while the industry has in no sense been ordered to convert to arms production, nearly every manufacturing concern in the country has some sort of a munitions or war materiel contract which it is fulfilling in addition to its refrigeration products which are finding so many places in the War Effort.

In an all-encompassing statistics-gathering effort on the part of the staff of AIR CONDITIONING & REFRIGERATION NEWS the figures show that of the refrigeration equipment produced in 1942 by commercial refrigeration and air conditioning manufacturing concerns, 50% is being used directly by the armed forces, 25% is going to war plants, and 25% to essential civilian needs.

In view of the fact that total sales are not down too greatly from the peak sales year of 1941, the actual number of units of refrigeration equipment going into the war effort is very considerable.

Basis of these statements about where the equipment sold in 1942 has gone is an "end-use" survey of every available source of figures in the commercial refrigeration and air conditioning field. In previous years a survey giving the breakdown of civilian uses was difficult to obtain, because the manufacturer sold and shipped his product to the field distributing organization, and in most cases made little effort to keep track of the final disposition of the product.

Under wartime conditions — and particularly through the operations of the War Production Board's priority system—the manufacturers have been able to keep an accurate count of their sales not only to the armed services, but also for those industrial and other indirect but none the less important uses in the war effort.

The figures obtained by AIR CONDITIONING & REFRIGERATION NEWS, show, in the main, three important points:

1. Number of units sold.
2. Dollar volume of units sold.
3. "End use" of the equipment sold.

Dollar volume of total condensing unit sales in 1941 are estimated to

(Concluded on Page 4, Column 3)

Sterling Smith To Head Refrigeration Section Under New Setup

WASHINGTON, D. C.—The Air Conditioning and Commercial Refrigeration Branch of the WPB has been dissolved, and its functions consolidated into those of the General Industrial Equipment Branch of WPB, which branch is headed by C. S. Williams.

It is understood that "air conditioning and commercial refrigeration" will be a section in the General Industrial Equipment Branch. The section, it is understood, will be headed by Sterling Smith, who was the Administrator of orders under the former branch setup.

No official announcement has yet been made as to how L-38, P-126, and other orders affecting the air conditioning and commercial refrigeration industry will be administered under the new setup.

The order calling for the new setup was brief and to the point, stating:

"The purpose of this order is to consolidate the Air Conditioning and Commercial Refrigeration Branch with the General Industrial Equipment Branch.

"The Air Conditioning and Commercial Refrigeration Branch is hereby abolished.

"The functions, personnel, records, and equipment of the Air Conditioning and Commercial Refrigeration Branch are hereby transferred into the General Industrial Equipment Branch."

Keefe, Oberc Form Exchange to Help Balance Inventories

DETROIT.—William D ("Bill") Keefe has resigned from Fedders Manufacturing Co. to become president of the War Emergency Materials Exchange, formed last week by Keefe and J. M. ("Joe") Oberc, Detroit refrigeration supplies jobber.

Purpose of the Exchange is to move inventories of refrigeration parts and supplies to where they are needed from where they are moving slowly.

Both manufacturers and jobbers, Keefe and Oberc believe, are ladened with unbalanced inventories. They propose to survey shortages in each area, collect information on surpluses, and redistribute such inventories for the good of all and particularly to expedite war goods manufacturing.

Mr. Keefe, who will devote his entire time to the new project, knows

(Concluded on Page 24, Column 5)

Where To Find Statistics In This Issue

All Industry Sales Figures . . . . . page 4

Where Condensing Units Were Installed . . . page 7

Where Cases, Cabinets, and Coolers Went . . . page 18

Where Water Coolers Were Installed . . . . . page 19

Installation Parts Sales and Materials Data . . page 21

Decision Expected Soon on Proposed Control Of Distributor and Retailers' Inventories

WASHINGTON, D. C. — The Wholesale and Retail Inventory Policy Committee of the Office of Civilian Supply has completed its consultations with representative wholesalers and retailers and has begun drafting a report on whether countrywide inventory control is necessary, Chairman Eaton V. W. Read announced recently.

The report, based on a thorough examination of all phases of the wholesale and retail inventory problem, will be submitted within a few days, Mr. Read said, to Joseph L. Weiner, Deputy Director of the Office of Civilian Supply.

Members of the committee, besides Mr. Read, are Irwin D. Wolf, of Pittsburgh and John A. Donaldson, of Chicago.

INVESTIGATION COMPLETED

During the past three weeks, the committee has conducted personal interviews with 220 merchants—wholesale and retail, large and small—representing businesses in 24 states in all parts of the country. These interviews took place in Washington, New York, Chicago, and Pittsburgh. Hundreds of letters have been received and studied.

"The committee feels that it has obtained invaluable data on the important question of inventory control," Mr. Read said. "During the course of our personal interviews, we encountered a wide variety of opinions as to the necessity for regulation. In some cases we found small merchants opposed to control and large merchants in favor of it, while in others the reverse was true."

The committee did not attempt at any of its conferences to investigate the inventory position of any merchant, he said, but merely sought an expression of opinion. A number of plans for inventory control were volunteered by wholesalers and retailers, and these will be given careful consideration.

Merchants interviewed by the committee represented not only all sections of the country, but also many lines of trade ranging from groceries to millinery shops, from jewelry stores to farm implement dealers.

QUESTIONS ASKED

Mr. Read said that of each merchant interviewed, the committee asked three major questions:

Do you believe that some form of inventory regulation is necessary, or not?

What are the reasons for your opinion?

If some form of control is found to be necessary, what are the factors in your trade that should be taken into consideration in formulating a plan?

Answers to these questions and many more, together with the results of studies made by the committee's technical staff, will form the basis for the report to Mr. Weiner.

Steel Use Permitted In More Air Cooling Jobs

WASHINGTON, D. C. — Amendment No. 4 to the Iron and Steel Conservation Order M-126 includes many additions to list C which will be of interest to the industry.

Also in connection with Order M-126, the War Shipping Administration was added to the list of Government agencies for which iron and steel may be used to manufacture articles prohibited for civilians and all others by Order M-126.

List C now reads as follows:

"Air Conditioning Systems—hospital operating rooms, industrial plants (excluding offices) for use on board ship, for use outside continental limits of the United States, for use in fortifications, for handling and storage of explosives, for storage and handling of instruments critical to temperature, and in gas proofing installations.

"Attic fans—where climatic conditions make necessary.

For the period ending Sept. 3, 1942:

"Ice box interiors."

Subparagraph (g) (8) (ii) should be read as follows:

"(ii) 'Army-Navy-Maritime order' means an order for material to be purchased (or physically incorporated into material to be purchased) by or for the account of the Army or Navy of the United States, or the United States Maritime Commission, or the War Shipping Administration where the use of iron or steel is required by the specifications (including performance specifications) of these agencies.

Volunteer Your Services For Scrap Collection WPB Asks of Every U. S. Merchant

WASHINGTON, D. C.—The Conservation Division has published an appeal by S. J. Dunaway, Chief, Retail and Wholesale Trade Section of WPB's Service Branch, asking wholesalers and retailers to make a clean sweep-up of critically needed scrap material accumulated in their storerooms and shops.

"There are nearly 2,000,000 retail distributors and over 100,000 wholesale distributors of all types, throughout the United States, and I am certain," said Mr. Dunaway, "that every one of them has a lot of old damaged merchandise gathering dust in odd corners and an accumulation of discarded, used, and broken metal equipment which should be added to our Nation's scrap stock pile. Burlap bags, old rope, rags, rubber hose, tires, and other salvagable articles can be found on every distributor's premises.

"I am sure that if the merchant knew that the old stove lying broken up and useless on his scrap pile would make 10 4-inch shells, that the abandoned radiator will make 17 .30 caliber rifles, and that the leaky wash pail will make three bayonets, he would collect every bit of salvagable scrap in his shop or storeroom and start it on its way to becoming valuable war material."

Salvaged material is not given to the government. It is returned to the mill and the reclaiming plants through the usual channels of the scrap business. Merchants may sell their scrap to the junkman or give it to charitable organizations which have undertaken to collect it. In either event, it will go into war production.

"Whether or not the merchant has scrap to dispose of," said Mr. Dunaway, "I strongly urge him to get in touch with his local salvage committee. There may be something he can do to help the committee press home to the American people the necessity of raking up every bit of scrap in the country."

Formulas Are Established For Pricing of Idle or Frozen Material Inventories

WASHINGTON, D. C.—Formulas designed to simplify the pricing of idle or frozen materials sold under Priorities Regulation No. 13, of the War Production Board, thus further facilitating the flow of such materials into war uses, were announced Aug. 15 by Price Administrator Leon Henderson.

The formulas are contained in Maximum Price Regulation No. 204, which becomes effective Aug. 20, 1942, Idle or Frozen Materials Sold under Priorities Regulation No. 13. Price regulation fulfills a request from the War Production Board for the establishment of maximum pricing provisions to facilitate inventory sales authorized by the priorities regulation.

"Maximum Price Regulation No. 204 is based on the principle that no purchaser of idle or frozen inventories should pay a price in excess of the price which he would be forced to pay had he purchased such materials from a regular supplier," said Mr. Henderson.

On July 7, 1942, the Director of Industry Operations of the War Production Board issued Priorities Regulation No. 13 (Special Sales of Idle or Frozen Materials) "to provide uniform rules governing special sales of idle or excess materials by persons who are not regularly engaged in the business of selling such materials, including distress and liquidation sales and sales by persons who, by reason of the effect of priorities orders or for other reasons, cannot use such materials in the regular course of their business."

Priorities Regulation No. 13 covers all materials, including every material which has, at any time, been made subject to a War Production Conservation or Limitation Order. Sales of idle or frozen inventories are facilitated in No. 13 by liberalization of many of the previous limitations. Hence, large quantities of materials which until now have lain idle can be made available for war uses.

"Idle or frozen materials" are defined in the Price regulation as "any commodity, accessory, part, assembly, or product not in a form normally sold by the seller in the ordinary course of his business and sold or delivered pursuant to Priorities Regulation No. 13. It does not include any raw or unprocessed agricultural commodity."

Maximum Price Regulation No. 204 provides:

1. Wherever a specific dollar and cents maximum price exists which is applicable to the sale of idle or frozen materials by their present holder, the maximum price established by such regulation shall apply.

2. No maximum price is provided for sales to the original supplier of the material, or to another producer of the material on the grounds that the original supplier or other producer must resell at an established ceiling, thus avoiding any danger of a higher cost to any subsequent user.

3. In the case of materials sold to any other authorized buyer, for which no specific maximum price in dollars and cents terms exists, and which are sold in the same form in which they were originally purchased, the seller shall ascertain the maximum price which the original supplier is permitted to charge for the same or similar material and apply that maximum price to his sales.

4. In cases where the original seller no longer exists, or no longer sells the material in question, the seller of idle or frozen materials is permitted to charge a price not in excess of the actual delivered cost to him.

5. Idle or frozen materials which have been fabricated, processed, or otherwise altered, or alloyed, assembled, mixed, or otherwise combined so that they no longer are in the form in which originally purchased by the seller, are put in two classes for pricing purposes.

In the first class are materials which have been fabricated or combined into a form in which other producers will find them readily usable for further fabrication or assembly. In such cases, the regulation permits the seller to receive a price equal to his cost of materials and labor, plus the percentage markup which he would have received had he been permitted to complete the fabrication or assembly into his normal product.

In the second class are materials which are not usable in their existing state in any currently permissible productive process. Since the fabrication or combination which has taken place possesses no economic value under present circumstances, these materials must be sold for scrap or salvage purposes.

6. In the case of materials which are not usable and for which a definite maximum price for sale as scrap has been established by a maximum price regulation, that maximum price shall apply. If there is no OPA ceiling price, and the material is sold to a scrap dealer, no maximum price is established by today's regulation.

However, if the materials are sold as scrap to industrial consumers and if there is no specific maximum price for their sale as scrap, waste, or salvage, Regulation No. 204 establishes a maximum price equal to 80% of the delivered cost of the material to the seller.

NATIONAL NUTRITION

Is Largely Up to Us

● "The U. S. needs us strong."

Under this slogan, American homemakers are getting a great education in food selection and meal planning, through the National Nutrition Campaign.

They are learning food values, vitamin and mineral content, the art of properly balancing meals — all to assure a strong and healthy America, with stamina for working and fighting, and morale to carry us through.

To maintain vitamin content, as well as to preserve the wholesomeness of perishable foods, requires efficient *refrigeration.*

Our industry, therefore, has a big part to play in this campaign — national nutrition is largely up to us. We must do our utmost, not only to prevent spoilage, but to help maintain the real nutritional values in our nation's food supply.

The urgent need for conserving critical materials requires that, wherever possible, present refrigeration equipment be made to function. When existing controls cannot be repaired you can replace them with dependable Penn controls . . . available under present priority regulations. *Penn Electric Switch Co., Goshen, Indiana.*

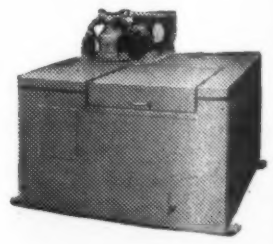
PENN CONTROLS

REFRIGERATION, AIR CONDITIONING, ENGINE, HEATING, PUMPING AND AIR COMPRESSOR

My Boss calls his new SCHULTZ MILK COOLER our "Bacteria Warden"

"Yes, sir, the old man knew his bovines when he installed a floating-ice Schultz electric cooler to guard the good milk I work so hard to produce. Lucky he got it when he did, too. Daisy tells me those Schultz people have built all the coolers the WPB will allow, and are all-out on war work now.

"How those new Guernsey Girls down the row will make out without a bacteria warden, I don't know. Just think of all the nasty bacteria in THEIR milk by the time it gets to market. My cud, I bet THEY'LL be glad when this war's over and Schultz is back on the job again!"



Daisy is right—There are no coolers left and Schultz Bros. are up to their neck 100% on war work.

SCHULTZ BROTHERS, Saginaw, Mich.

Electric Milk Coolers • Cold Water Milk Cooling Tanks

Power Co. Salesmen Canvass To Promote Proper Servicing

DENVER—A "fixup" conservation program has been started by the New Business Department of Colorado Public Service Co., in the interests of helping along the government's conservation program while at the same time retaining on the payroll valuable appliance salesmen who will be seriously needed after the war. This new program provides that the former salesmen now sell repair services and teach conservation.

The new program was begun by E. M. Roland, head of the department, and concerns 38 men.

"We will not solicit any business on electrical appliances, although we have a large stock on hand, Mr. Roland said, "merely turn these over to the customer who comes in and asks for them. Otherwise our salesmen's jobs are 100% service work and are helping to keep the present appliances in use in the Denver homes."

The 38 appliance salesmen were designated a single group and put through an eight-meeting training program during the month designed to teach them elementary repairs and adjustments to electric ranges, water heaters, refrigerators, and other electric appliances.

Each man has been appointed to one of 38 districts into which Denver is divided. His job is to see the appliances, examine them, make minor repairs, and recommend repairs on others when necessary. Parts replaced must be sold through a dealer.

Men are armed with a folder especially prepared by the Colorado Public Service Co. to show waste and inefficiency of improperly adjusted electrical appliances.

'Last Call' Sounded For Voluntary PRP Application Forms

WASHINGTON, D. C.—Because WPB facilities for processing Production Requirements Plan applications are now taken up with handling fourth quarter applications, J. A. Krug, Deputy Director General for Priorities Control announced Aug. 18 that no additional third quarter applications can be processed unless they are sent in at once.

A considerable number of third quarter applications are continuing to come in from companies deciding voluntarily to operate under PRP, even though they are not required to do so under the terms of Priorities Regulation No. 11, which makes PRP mandatory for companies using more than $5,000 worth of certain forms of metals in a quarter.

Companies which do not submit third quarter applications immediately are now advised that they cannot be accepted under PRP until the next quarter. The only exceptions to this rule are new companies or plants just ready to begin production.

Aug. 10 was the deadline for filing fourth quarter PRP applications by companies whose use of the plan is mandatory, and the time for accepting voluntary fourth quarter applications will also be limited.

Railroads to Extend Frozen Food Shipments

WASHINGTON, D. C.—To provide additional storage facilities in coastal areas for military purposes, the transcontinental railroads have agreed to broaden their storage-in-transit privileges to include frozen fruits and vegetables originating on the Pacific Coast, the Office of Defense Transportation announced today.

The new arrangements will permit frozen fruits and vegetables to be forwarded for storage to interior points in the Western, Southern, and Eastern territories.

The arrangements were negotiated with the railroads, through their freight traffic associations, by ODT's Division of Rates at the request of the Division of Storage.

Army New Fall Guy In Old Eskimo Joke

SYRACUSE, N. Y.—There is a new wrinkle to the old joke about the traveling salesman who was so good (?) that he was able to sell refrigerators to the Eskimos.

Latest version of this story has to do with installation by Carrier Corp. of an ice cream freezer and storage room in Alaska for the United States Army.

It seems that the temperatures up Alaska way are not sufficiently low to produce and maintain this great American dish in satisfactory fashion. As a result the Army commissioned installation of a refrigeration system which conditions the Army's ice cream hardening room at —15° F. and makes possible "unbaked Alaskan."

McCloud of Williams Moves To Cincinnati

CINCINNATI — H. S. McCloud, manager, refrigeration department, Williams & Co., Inc., is transferring his office from the general office at Pittsburgh to the branch maintained at Cincinnati for the duration, a company announcement states. The refrigeration department deals in parts and supplies.

Mr. McCloud will continue in charge of the refrigeration department operations. Mr. Blair and Mr. Hipps will continue activities from the Pittsburgh office.

Refrigerant Cylinders Are Urgently Needed

DETROIT — Despite repeated appeals and warnings to the field, return of refrigerant cylinders to producers of refrigerant is still slow, according to producers of refrigerants.

A special need has now arisen for 10 to 25-pound cylinders. Producers point out that those in the field who are hanging on to cylinders are damaging their own business by impeding the free flow of refrigerants.

N.Y. Kelvinator & Leonard Branch Offices Moved

NEW YORK CITY — New York zone offices of Kelvinator and Leonard have been moved to new headquarters in the Nash-Kelvinator administrative building at 16 West 61st St.

For the past several years, zone offices have been in Long Island City.

Strong, Carlisle, Hammond Sold To Illinois Firm

CHICAGO — Central Illinois Co. here has taken over the Strong, Carlisle & Hammond Co., Cleveland, tool and appliance distributor.

The present management will be retained; J. J. Stephens, general manager and treasurer; R. L. Keech, secretary.

Promotion of Stokers and Grates To Convert Oil Burners Urged by WPB

WASHINGTON, D. C. — Home owners and plant operators should make immediate arrangements to obtain the grates and stokers needed to convert fuel oil burners, and at the same time, arrange to purchase the necessary amounts of coal, the WPB Plumbing and Heating Branch said last week.

The Branch pointed out that the action of WPB in setting aside 11,000 tons of material needed for conversion will have served its purpose only if manuacturers receive the orders on which to base their application for allocations of materials.

Attention was called to the joint statement of OPA Administrator Leon Henderson and Petroleum Coordinator Harold L. Ickes advising every user of oil heat in the eastern area to take immediate steps to prepare for a fuel oil shortage this winter.

Home owners may be able to find the type of grates they need by going to a heating contractor or distributor. All existing stocks of grates and the accessory materials needed for conversion purposes may now be sold without restrictions.

If grates are not available in stock, a home owner should order a set from a contractor or dealer, and the equipment will be made from the metals provided for this purpose by WPB. The home owner need not file any papers.

Delay in ordering grates or stokers and the necessary coal threatens the success of the conversion program, Branch officials said. Applications for materials, final manufacture, the assurance that homes and plants will be warm this winter—all depend on prompt action by the consumer.

Industrial plants desiring to obtain stokers for conversion purposes should file an application for a preference rating with the Plumbing and Heating Branch.

Manufacturers of these types of equipment should make applications for materials to the Plumbing and Heating Branch on form PD-25-f, if they are under the Production Requirement Plan, or on form PD-1a if they are not.

Canada Freezes Stocks Of Electric Ranges

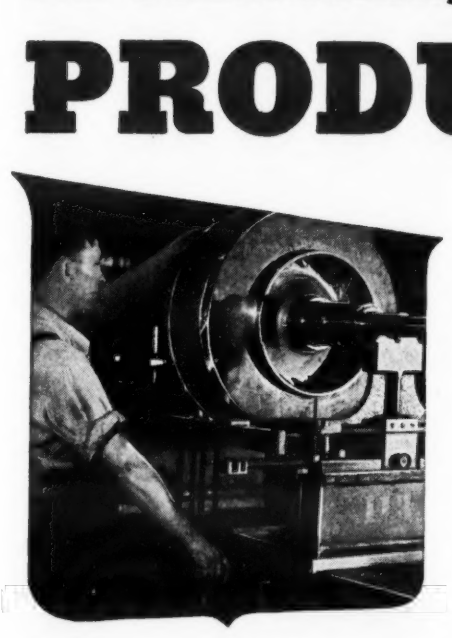
OTTAWA, Ont. — Electric range stocks in the hands of Canadian manufacturers, dealers, and distributors have been frozen and no further sales may be made except under special permit, the department of munitions and supplies has announced.

Rationing regulations are now being formulated by the Wartime Prices and Trade Board, it is said.

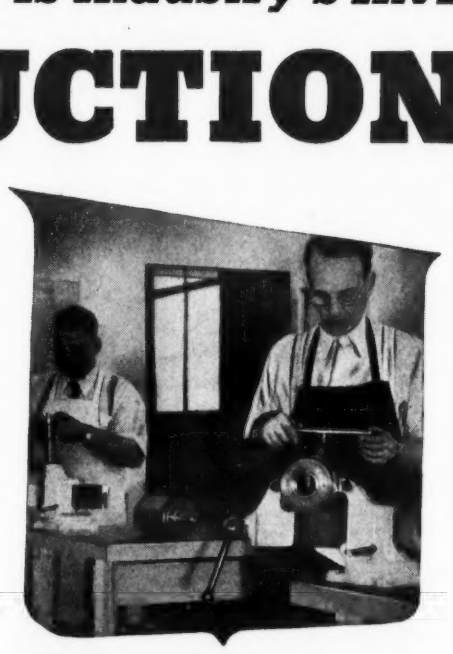
The new order affects ranges sold and not delivered but does not affect second-hand stoves. All new ranges of more than 35 amperes, all new combination coal and electric ranges, and all new electric rangettes come under its terms.

Air Conditioning is industry's invisible but mighty

PRODUCTION TOOL



FASTER — Carrier Air Conditioning and Refrigeration equipment is speeding America's war production in more than 200 industries.



BETTER — Quality of production is stepped up, too! Expansion and contraction of metals are prevented. Greater accuracy results.

MORE — Output is increased tremendously in air-conditioned plants. Rejects are reduced considerably. Production quotas are reached regularly.

TODAY, the use of Carrier Air Conditioning and Refrigeration is increasing so rapidly and to such an extent that it is demonstrating its necessity as a production tool. Carrier Controlled Indoor Weather is being used for more processes and purposes than ever. Many plants that never before had *temperature and humidity control* are now discovering their productive advantages; others are expanding or converting present air conditioning and refrigeration equipment to serve in new ways being discovered almost daily.

IS YOUR PLANT GETTING ALL THESE BENEFITS OF MODERN AIR CONDITIONING AND REFRIGERATION?

Why not check up now on how you can use air conditioning and refrigeration to advantage in your plant? Here is a partial list of how Carrier is serving over 200 industries engaged in war production:

- ☐ Temperature and humidity control in Gage Rooms, Testing Laboratories, and Storage Rooms
- ☐ Ventilation and air tempering for totally enclosed industrial plants
- ☐ Evaporative condenser cooling for Diesel jacket water, and cutting-tool liquids
- ☐ Complete or partial plant air conditioning from a central system or unitary system
- ☐ Refrigeration for:
  - Food preservation in cafeterias
  - Drinking water
- ☐ Cooling of:
  - Quench oil
  - Other tempering solutions
  - Water for shock tests on shells
  - General process water
  - Cutting solutions

Carrier engineers will be glad to discuss the requirements of your plant without obligating you in any way.

CARRIER CENTRIFUGAL REFRIGERATION MACHINE

Invented 20 years ago, these famous machines are used in the air conditioning and refrigeration systems that are helping to speed war production in hundreds of America's industrial plants.

Carrier Centrifugal REFRIGERATION

The Navy "E", one of the U. S. Navy's most coveted honors, was awarded to Carrier Corporation for excellence in war production.

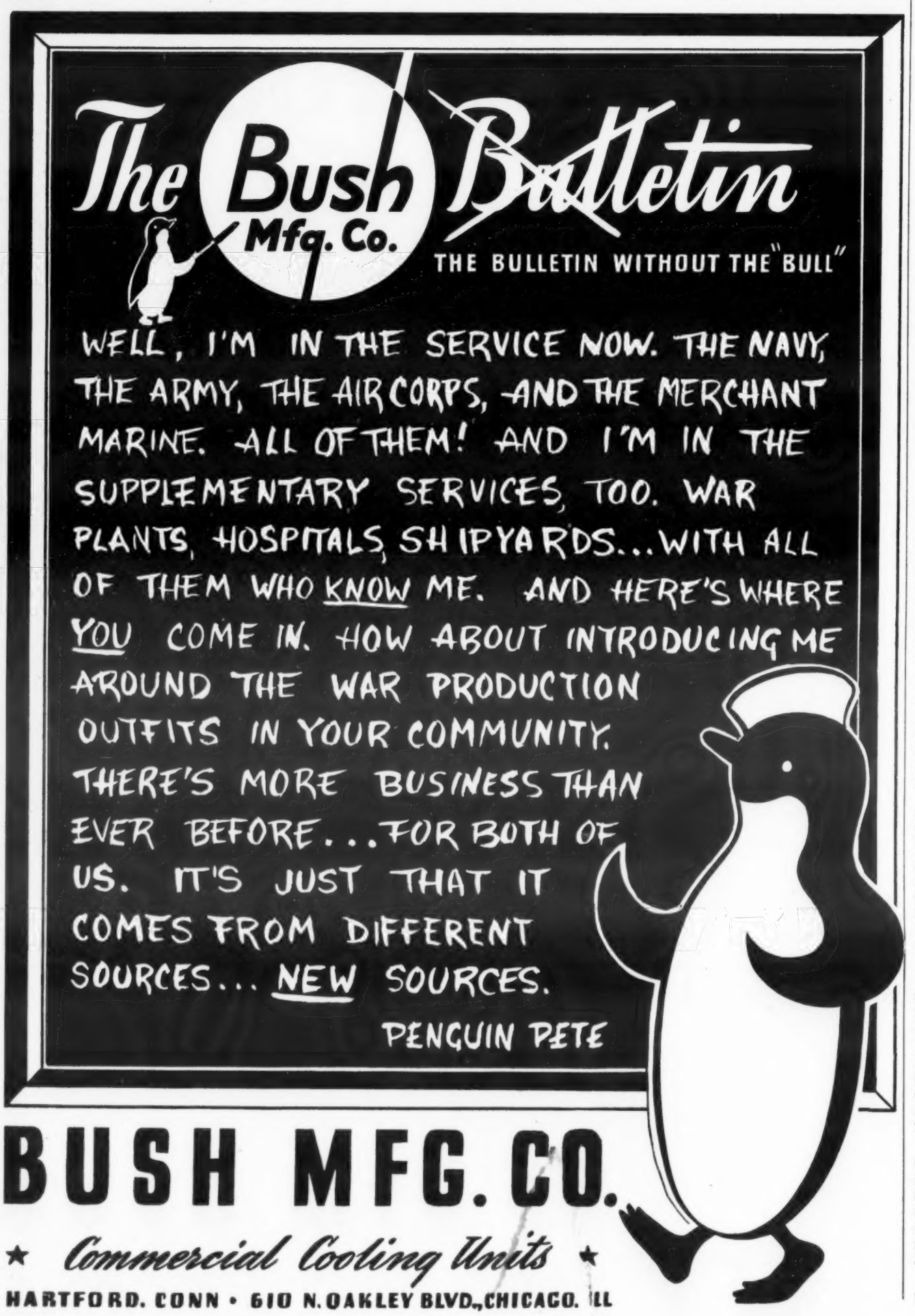
TOMORROW—A BETTER PEACE-TIME WORLD

After the war is won, markets and sales opportunities for air conditioning and refrigeration equipment will be greater than ever before. And Carrier will then devote its efforts to improving products for a better peace-time world.

All-Industry Commercial Refrigeration and Air Conditioning Sales For 1941 and the First 6 Months of 1942

SALES—1941 Number of Units	SALES—1941 Dollar Volume*	Products	SALES—6 MOS. 1942 Number of Units	SALES—6 MOS. 1942 Dollar Volume*	END USE DATA—1942 Government Agencies	END USE DATA—1942 War Plants	END USE DATA—1942 Civilian
442,763	33,543,305	CONDENSING UNITS—below 3 hp.	100,494	6,895,460	37%	26%	37%
5,821	3,115,300	CONDENSING UNITS—3 hp. to but not including 15 hp.	7,221	4,733,186	51%	29%	20%
2,570	4,276,055	CONDENSING UNITS—15 hp. to 100 hp. inclusive(*) (See Chart on Page 7)	154	3,776,872	50%	29%	21%
170	769,500	CONDENSING UNITS—over 100 hp.	100	1,211,590	40%	25%	35%
14,700	5,760,000	MILK COOLERS	9,675	3,140,000	..	..	100%
155,000	522,350	FOOD STORAGE LOCKERS	125,000	420,250	..	..	100%
64,300	24,550,000	FOOD STORAGE Cases, Cabinets, and Coolers (See Chart on Page 18)	27,656	10,743,295	36%	..	**64%
...	...	WATER COOLERS (all types) (See Chart on Page 19)	34,311	2,822,278	49%	34%	17%
...	...	ICE CREAM CABINETS	690	218,817	19%	17%	64%
119,610	9,672,270	BEVERAGE COOLERS	3,423	641,518	22%	62%	16%
689	2,119,910	ICE MAKING EQUIPMENT	999	1,837,108	60%	25%	15%
38,866	9,497,250	SELF-CONTAINED AIR CONDITIONERS—½ to 25 hp.	17,505	4,268,741	61%	22%	17%

*Dollar volume figures are given at factory prices. **Includes war plant installations. (*) Including evaporative condenser and water-cooled condenser.


The Bush Bulletin
Mfg. Co.
THE BULLETIN WITHOUT THE "BULL"
WELL, I'M IN THE SERVICE NOW. THE NAVY, THE ARMY, THE AIR CORPS, AND THE MERCHANT MARINE. ALL OF THEM! AND I'M IN THE SUPPLEMENTARY SERVICES, TOO. WAR PLANTS, HOSPITALS, SHIPYARDS... WITH ALL OF THEM WHO KNOW ME. AND HERE'S WHERE YOU COME IN. HOW ABOUT INTRODUCING ME AROUND THE WAR PRODUCTION OUTFITS IN YOUR COMMUNITY. THERE'S MORE BUSINESS THAN EVER BEFORE... FOR BOTH OF US. IT'S JUST THAT IT COMES FROM DIFFERENT SOURCES... NEW SOURCES.
PENGUIN PETE
BUSH MFG. CO.
★ Commercial Cooling Units ★
HARTFORD, CONN • 610 N. OAKLEY BLVD., CHICAGO, ILL

War Uses Take 75% of Sales In First 6 Months of 1942

(Concluded from Page 1, Column 4)

have been $41,704,160, representing 451,324 units, as against $16,517,108, representing 107,969 units for the first six months of 1942.

Units of under 3 hp. took the brunt of the sales cut, dropping from 442,763 for the 12 months of 1941 to 100,494 units for the six months of 1942. In the same six-month period, units of 3 to 14 hp., comprising the bulk of sales to government agencies, actually increased over the full-year 1941 figures.

Sales of units of these sizes amounted to 7,221 units during the first half of 1942, as compared with 5,821 units for the entire previous year. Sales of larger units, notably in the 15 to 100 hp. bracket, which dropped from 2,570 to 154 units, slumped greatly.

Milk coolers were among the few items for civilian use on which sales were not cut sharply during the six-month 1942 period. Largely because of the fact that milk cooler manufacturers had been given relatively high quotas for 1942 production, sales in the first half of the year amounted to an estimated 9,675 units, as compared with 14,700 units for the full year 1941.

Like milk coolers in that they are among the more essential strictly civilian items, sales of food storage lockers probably increased for the comparable six months periods. First-half 1942 figures show sales of 125,000 units as against 155,000 for all of 1941.

Sales of display cases, reach-in cabinets, and walk-in coolers dropped from $24,550,000, representing 64,300 units for 1941, to $10,743,295, representing 27,656 units for the first half of 1942. Subtracting those units sold to government agencies in 1942, civilian and war plant installations totaled only 17,625 units for the six months.

On less essential items, such as beverage coolers and ice cream cabinets, sales slid downhill toward the zero mark. Compared with $9,672,270 for 1941, dollar sales of beverage coolers in 1942 amounted to only $641,518, and unit volume dropped from 119,610 to 3,423. Ice cream cabinets, with six-month 1942 sales of only 690 units, fared even worse.

Reflecting the rapidly growing use of packaged air conditioners in war plants, and the government services, sales of self-contained air conditioning units in the ½ to 25-hp. bracket amounted to 17,505 units for the six months of 1942, compared with 38,866 units for all of 1941.

In line with reduced production throughout the industry, sales of installation parts also dropped considerably. Among parts used for field installations of new equipment the cut was particularly severe.

Sales of expansion valves for installations of new equipment amounted to an estimated 56,000 units with a dollar volume of $304,000 for the six-month 1942 period. Temperature and pressure control sales totaled 17,000 units with a dollar volume of $102,000.

Strainers, dryers, valves, and fittings sales in the first half of 1942 amounted to $458,000, and solenoid valve sales added up to 9,000 units with a dollar total of $76,000. Copper tubing sales amounted to an estimated 758,900 pounds with a dollar total of $227,700.

It should be noted that these figures given for installation parts sales include only items used in installations of new equipment and do not include the considerably greater sales of parts for repair work. Like all other figures compiled in the NEWS statistical survey, dollar volume totals represent factory price sales figures.

FREEZING WHILE DEFROSTING
WATER
DEFROST
FOR FREON METHYL CHLORIDE SULPHUR DIOXIDE AMMONIA, and BRINE
WITH 'RECOLD HUMID AIR' LOW TEMPERATURE EVAPORATORS
LICENSEES IN U.S.A.
BUSH MFG. CO. Hartford, Conn.
KRAMER-TRENTON CO. Trenton, N. J.
McQUAY, INC. Minneapolis, Minn.
REFRIGERATION ENGINEERING, INC.
Los Angeles, California, U.S.A.

'Fast Change' System To Test Radio Parts Done by Air Control

KANSAS CITY, Mo.—Engineers operating a new "cold room" for testing radio parts—located in Kansas City—really have to be "quick change artists."

No sooner does the thermometer go soaring up to tropical jungle levels of 150° F. or hotter, than it turns tail and goes skidding down to —40° F. or thereabouts.

These temperamental temperatures are created to check the performance of precision radio parts under extreme conditions. Such equipment includes sound detection instruments for the Navy, delicate detectors for anti-aircraft use and similar apparatus which must stand up under the diverse climates of various parts of the globe.

Solution to the problem is the "cold room" which is an 8 by 12 foot room lined with eigh inches of cork insulation in walls and floor, 10 inches in the ceiling. Equipment supplied by Carrier Corp. was used throughout to produce the maximum low temperature of 40° F. and consists of a 50-hp. refrigerating compressor with a diffuser installed in the center roof panel of the room.

A boiler and humidifier to produce the high humidity needed to simulate Caribbean conditions are likewise used, with a battery of electric strip heaters to produce temperatures above 150° F. in a few moments' time.

Equipment undergoing the test is put through the full range of temperatures and checked every 10 degrees for operating efficiency, and has included radio equipment ranging from a large transmitter the size of a refrigerator down to microscopic electrical parts. Rubber-gasket pneumatic seals are used on the double door entrance through which all test equipment moves, and seal the "cold room" effectively against cold or heat leakage.

Period of test varied with the type of equipment being checked, ranging from an hour for some parts to eight hours for vastly important two-way sets for stratosphere bomber and fighter plane sets. Use of the cold room through this wide range of temperatures has developed several improvements in aerial radio manufacture, notably new insulation and the use of less contractile metals for vital electrical connections and wiring.

Kerotest First Firm In Pittsburgh To Get Maritime 'M' Pennant

PITTSBURGH—Award of the U. S. Maritime Commission's "M" Pennant, Victory Fleet Flag, and Labor Merit Insignia to the Kerotest Mfg. Co.—first plant in the Pittsburgh district to receive the honor—was revealed last week by Walter G. Swaney, general manager of the company, following the receipt of telegraphed notification from Admiral H. L. Vickery, Commissioner of the U. S. Maritime Commission.

The Admiral's telegram stated that the award of the Commission to the company was made in recognition of outstanding efficiency in production. Presentation was scheduled for Aug. 29, at a ceremony to be held in a newly-completed building of the company, and the Maritime "M" Flag will be presented by C. E. Walsh, Jr., director of the procurement division. Admiral Vickery is expected to give the principal address.

"We are very proud to be one of the first plants in the country so far to receive the Maritime "M," said Mr. Swaney. "This recognition of our part in supplying valves and fittings for America's urgent shipbuilding program applies to all Kerotest workers—men who gave and are giving their level best to a vital job."

Pittsburgh League Moves Its Offices

PITTSBURGH—Electric League of Pittsburgh located downtown in Hotel William Penn has moved from the first shop floor down one flight to the club floor, Suite 58.

Vichy Source Provides Data on Nazi Air Conditioned Tank

DETROIT.—Some confirmation of the news reports, disputed by British official sources, that the Nazi forces in the Libyan campaign have been using air conditioned tanks, is contained in the July issue of the English trade publication "Modern Refrigeration" just received here.

Quoting from this publication:

"Following upon questions in the House recently concerning reports that the enemy was using air conditioned tanks in Libya—questions which elicited no confirmation in official replies—the publication in the 'News Chronicle' on the 14th instant of details of a 'Nazi fridg tank' created considerable interest.

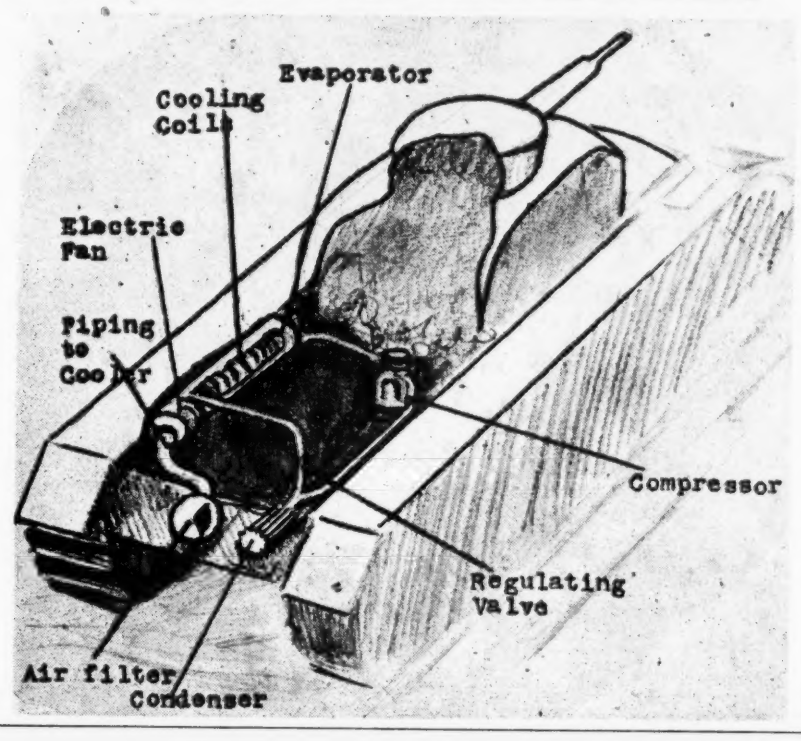
"The illustration published in this London daily paper was reproduced from the French organ 'La Semaine.' To those who considered that the gruelling traveling of a tank over all types of ground surfaces would preclude the installation of a mechanical refrigeration plant, this picture, if fully accredited, provides the answer. Lack of free internal space was also considered to rule out the fitting of an electrical compression plant.

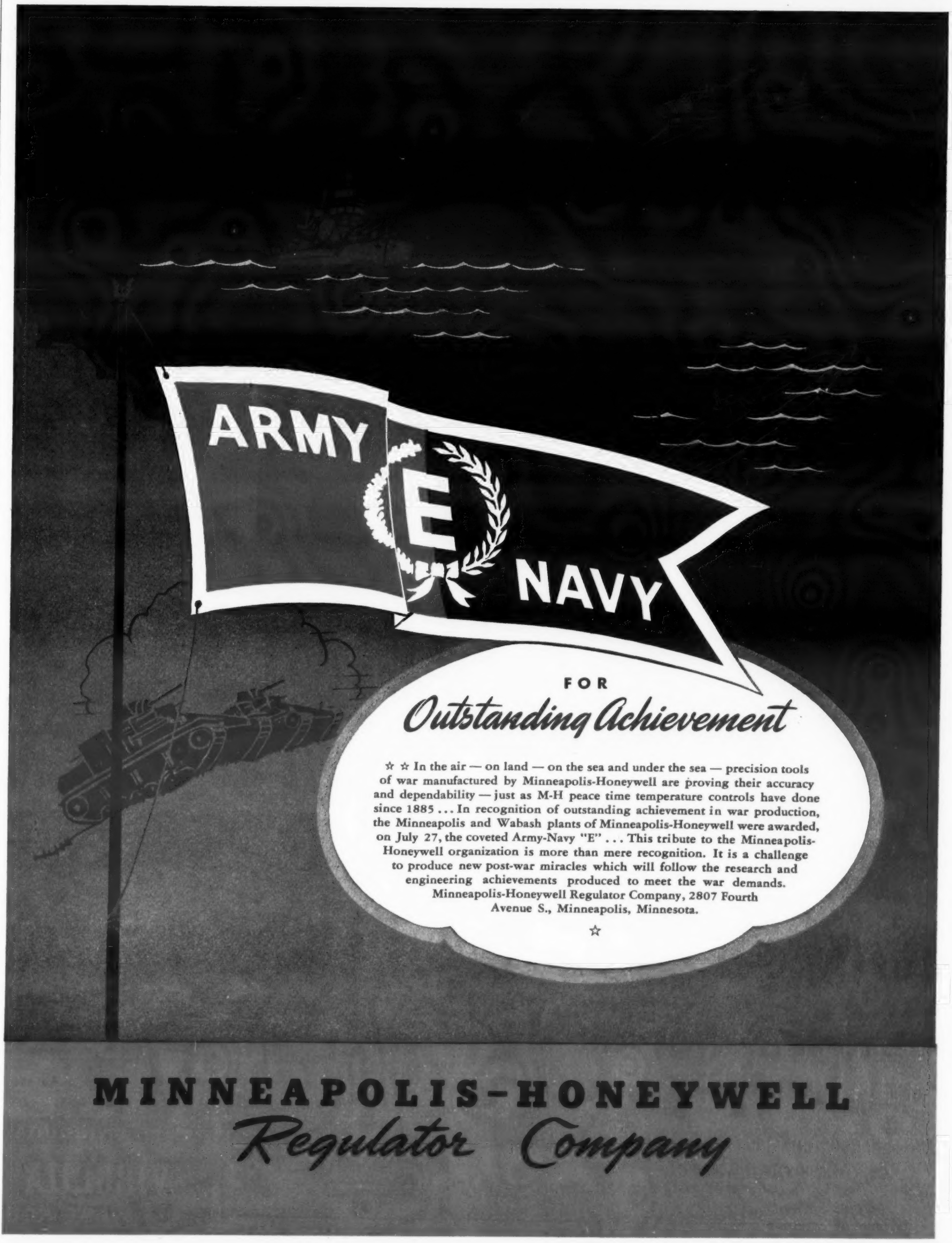
"The accompanying 'M.R.' sketch from the French illustration shows how the plant has been disposed in the after-part of the land ship.

"The refrigerator tank, says Vichy, has the cooling system inside in the less-exposed region of the vehicle. Air is sucked in through a filter to cleanse it of sand. Then it passes over spiral refrigerator piping, which brings the temperature to 68° F.

"It would be possible to obtain a lower temperature, but such a considerable difference from the outside temperature would be dangerous for the occupants. The cool air spreads inside the tank and the used air escapes by openings in the roof."

How German Tank Is Said To Be Cooled





FOR

Outstanding Achievement

☆ ☆ In the air — on land — on the sea and under the sea — precision tools of war manufactured by Minneapolis-Honeywell are proving their accuracy and dependability — just as M-H peace time temperature controls have done since 1885 ... In recognition of outstanding achievement in war production, the Minneapolis and Wabash plants of Minneapolis-Honeywell were awarded, on July 27, the coveted Army-Navy "E" ... This tribute to the Minneapolis-Honeywell organization is more than mere recognition. It is a challenge to produce new post-war miracles which will follow the research and engineering achievements produced to meet the war demands.

Minneapolis-Honeywell Regulator Company, 2807 Fourth Avenue S., Minneapolis, Minnesota.

☆

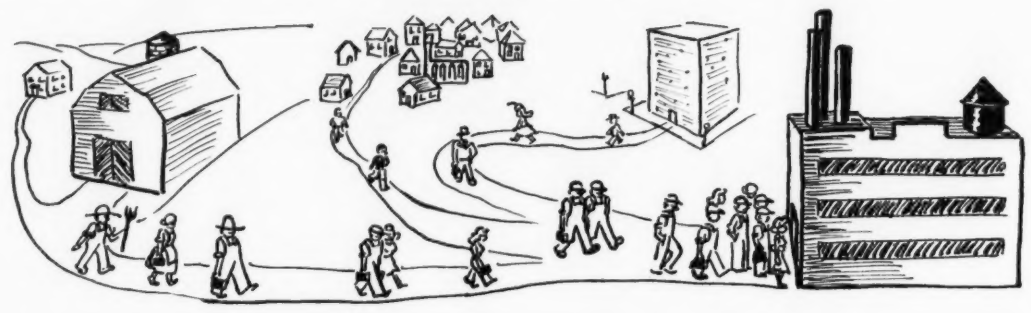
MINNEAPOLIS-HONEYWELL

Regulator Company

WHY CIVILIAN DEMANDS FOR REFRIGERATION ARE INCREASING

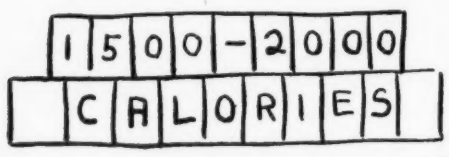
1. Population Shifts Are Concentrating More People In Industrial Areas

Since Pearl Harbor, millions of people have started to work in factories for the first time. Nearly 13 million MORE people must shift to war work in industry by 1943.

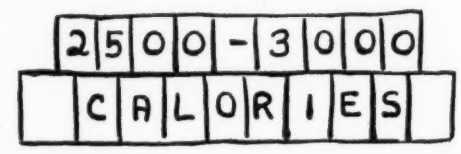


Movement of these people into factory areas has placed a burden on existing refrigeration equipment. Warehouses which store the food, stores which sell the food, restaurants which serve the food must expand their facilities.

2. Factory Workers Require More Food and More Vitamins

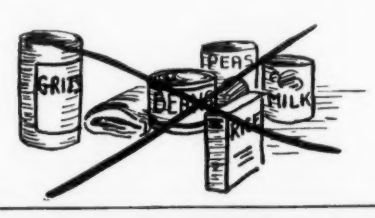


A man doing light work requires as little as 2,000 calories per day, while a man doing heavy factory work needs 3,000 or more calories. A woman doing housework needs but 1,500 calories compared with 2,500 calories for factory work. More factory workers doing more work means more calories. More calories means more food—and more refrigeration to handle the increasing load.



3. More Calories & More Vitamins Mean More Fresh Food on the Table

Increased incomes and night shifts both contribute to today's greater demand for fresh foods by factory workers. The salt pork, beans, and canned milk of Depression years are being replaced by fresh meat, fresh vegetables, fresh dairy products.



Fresh foods require refrigeration in shipping, in storing, and at the point of sale. If today's greater demands for fresh foods are not to overtax existing refrigeration facilities to the breaking point, more facilities must be provided.

The Case for Civilian Supply

(Concluded from Page 1, Column 2)

maintaining our civilian refrigeration system, America's civilian population will probably be ravaged by epidemics.

Hadn't we better pay heed while there still is time?

Okay, granted you are right, don't forget that the metals used in civilian refrigeration equipment are also needed for guns and bullets. What is the absolute minimum of refrigeration equipment which the civilian populace must have?

To answer that would require extensive, thoroughgoing surveys. First and foremost, we must have a sufficient *supply of repair parts.* These repair parts must be quickly available anywhere in the country, and there must be service men around to make the repairs.

Second, there should be enough new equipment produced to take care of:

(1) Shifts in population

(2) Greater food consumption

(3) Changes in buying habits caused by tire and gasoline rationing.

(4) Overloading of present refrigeration equipment because of increased consumption and transportation bottlenecks (a primary cause of the meat "shortage").

In your opinion, is Civilian Supply being allocated the necessary minimum of refrigeration equipment to keep our laborers, our women and children, healthy and protect them from the scourge of food-borne epidemics?

No. We are now living off of precariously limited inventories. The pinch is already felt in certain repair parts and in the scarcity of service men. The situation is not truly serious now, *but it will become so next year* if steps are not taken soon to provide better ratings for repair parts and to allocate a somewhat larger proportion of new complete units (essential types only) to civilian uses.

End of catechism.

Statistics in this issue of the NEWS, plus certain supplementary information, are being presented to interested committees of the War Production Board. These statistics show quite plainly how small is the proportion of refrigeration supplies currently flowing into civilian use—as compared with the normal consumption of such products.

Personally, as we said before, it's no skin off our nose. But we feel it's our patriotic duty to call these facts to the attention of the proper authorities. America must go on eating.

Typhus licked Napoleon in Russia. Typhoid could give the physician-bereft United States of America an awful setback.

ANSUL VICTORY

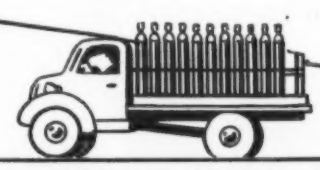
Reflected in the work of every Ansul man, in every phase of Ansul operation, and in the name itself is the nation's inexorable, driving Will to Victory.

ANSUL
Methyl Chloride
Sulphur Dioxide

ANSUL CHEMICAL COMPANY
MARINETTE, WISCONSIN

SAVE STEEL FOR VICTORY

Steel is precious . . . every pound counts in filling vital war needs. *Return* your empty cylinders *at once* to assure prompt shipment on your orders.



AC-52

WHATEVER YOUR NEEDS, LET THE FRIENDLY ANSUL JOBBER NEAR YOU SERVE

BUY DEFENSE BONDS & STAMPS

★ Refrigerants are vitally needed to protect the nation's food supply; conserve them by careful, efficient use. ★

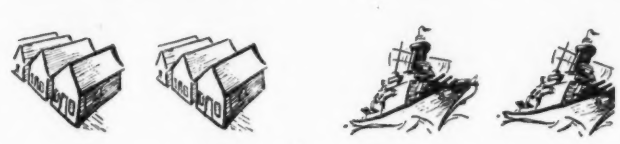
"VIRGINIA" REFRIGERANTS
AGENTS FOR KINETIC'S "FREON-12"

VIRGINIA SMELTING CO.
WEST NORFOLK, VIRGINIA

Here's Where Condensing Units Were Installed - First 6 Months 1942

UNDER 3 HP. (100,494 BUILT)

OF EVERY 100 CONDENSING UNITS UNDER 3 HORSEPOWER BUILT DURING FIRST 6 MONTHS OF 1942.



37 went to the Government and our Allies — 26 went to War Plants — 37 went to Civilians

3 TO 15 HP. (7,221 BUILT)

OF EVERY 100 CONDENSING UNITS FROM 3 TO 15 HP. (BUT NOT INCLUDING 15 HP.) BUILT DURING THE FIRST 6 MONTHS OF 1942.

51 went to Government Agencies and our Allies — 29 went to War Plants — 20 went to Civilians

15 TO 100 HP. (154 BUILT)

OF EVERY 100 CONDENSING UNITS FROM 15 TO 100 HP. BUILT DURING THE FIRST 6 MONTHS OF 1942.

50 went to Government Agencies and our Allies — 29 went to War Plants — 21 went to Civilians

Electrical Leagues to Meet in Cleveland From Sept. 17 to 19

NEW YORK CITY—Seventh annual conference of the International Association of Electrical Leagues convenes Sept. 17-19 at the Hotel Cleveland in Cleveland, with maintenance of installed appliances and salvage of critical materials being among the main topics for discussion.

A program committee which includes J. S. Bartlett, Washington, D. C.; John A. Morrison, Philadelphia; and W. A. Ritt, Minneapolis, has been appointed by Carl H. Christine, president.

Subjects scheduled include servicing and maintaining appliances; the dealer situation; maintaining relations with builders; home financiers and their associations; handling of problems incident to dimouts and blackouts; power conservation cooperation; salvage campaigns; promotion of safety lighting; cooperation with business groups in the development of programs to get business back to a peacetime basis when the war is over.

There will be three general open sessions on Sept. 17 and 18. Business problems of the Leagues will be discussed on the afternoon of the 18th and the 19th will be devoted to a round-table forum on league management problems.

EH&FA Orders Utility to Stop Taking Contracts

ALEXANDRIA, Va. — Electric Home and Farm Authority has notified the Virginia Public Service Co. (and presumably all others handling dealer contracts for appliances) to stop accepting contracts from all dealers after Aug. 22, 1942.

The EH & FA decision to discontinue purchasing new contracts and to liquidate, as promptly as possible, all outstanding contracts, was made in view of the President's special message to Congress in which he said "to keep the cost of living from spiraling upward, we must discourage credit and instalment buying, and encourage the paying off of debts, mortgages, and other obligations; for this promotes savings, retards excessive buying, and adds to the amount available to the creditors for the purchase of War Bonds."

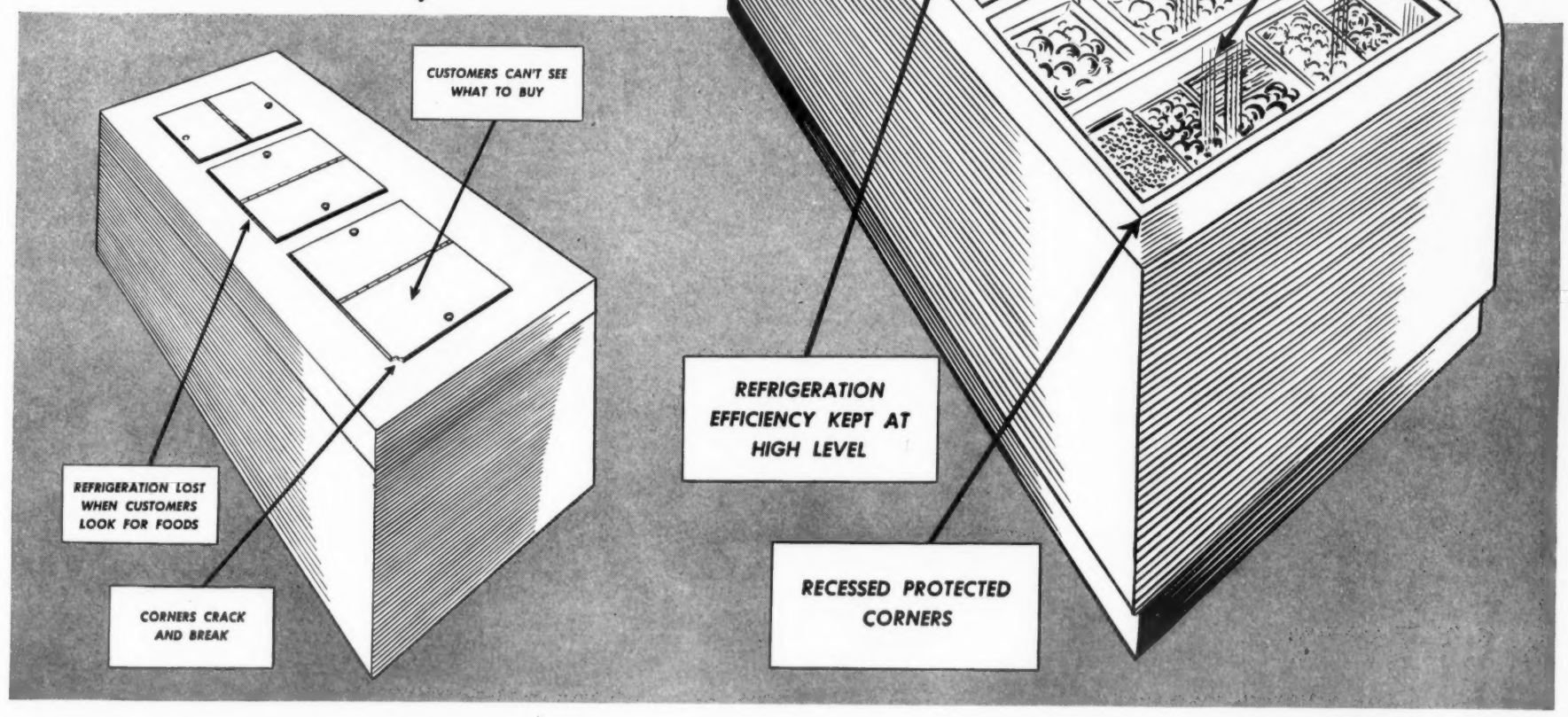
Allwork Shifted to WPB Plumbing Branch

WASHINGTON, D. C.—Appointment of Ronald Allwork, New York City, as Deputy Chief of the Plumbing and Heating Branch was announced Aug. 25 by W. Walter Timmis, Chief of the Branch.

Mr. Allwork has been Chief of the Branch's Planning and Projects Section since February of this year. Before joining the WPB staff, Mr. Allwork was a specialist in the preparation of specification data for building products.

SAVE MONEY! INCREASE SALES!

Replace "Blind Top" Cases with *Thermopane*


CUSTOMERS CAN'T SEE WHAT TO BUY
"NO FOG" GLASS TOP HELPS SELL FROZEN FOODS
REFRIGERATION LOST WHEN CUSTOMERS LOOK FOR FOODS
CORNERS CRACK AND BREAK
REFRIGERATION EFFICIENCY KEPT AT HIGH LEVEL
RECESSED PROTECTED CORNERS

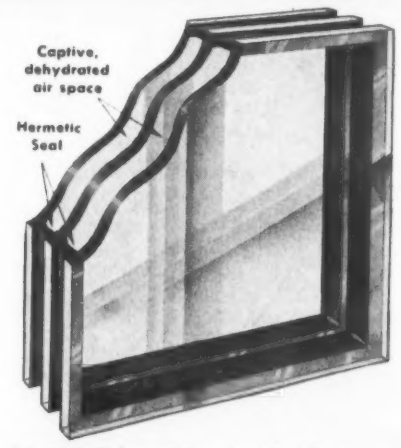
Customers *SEE* What They Want With Thermopane-equipped Cases

Replacing "Blind Top" frozen food cases with Thermopane—the new non-fog, transparent glass top — will increase sales for your cases because the *customer can see what she wants!*

In addition, Thermopane's patented construction eliminates costly chipping of edges and breaking of corners which permit refrigeration leakage.

Thermopane tops are non-fogging. The captive air is hermetically-sealed in—is dry and stays dry! Dust and dirt can't seep in.

You can readily replace "Blind Tops" with Thermopane because standard size Thermopane units are available for many standard cases—are easily installed. Their use may mean the difference between a profitable and nonprofitable case. So consider the increased turnover of replacing "Blind Tops" with sparkling, clear Thermopane. Libbey · Owens · Ford Glass Company, 1388-A Nicholas Building, Toledo, Ohio.



An Air-Conditioned Sandwich. Thermopane is a glass unit consisting of two, three or more panes of glass, separated by a ¼-inch or ½-inch of captive, dehydrated air, and sealed around the edges by an air-tight metal seal.

LIBBEY · OWENS · FORD

Thermopane

"Better Seeing Means Better Selling"

GET COMPLETE INFORMATION ON REPLACEMENT WITH THERMOPANE

Stock sizes are available or can be made to fit most frozen food and refrigerated display cases. Write us for replacement information on your particular case.

How Refrigeration Helps To Fight the War Behind the Lines

The 'Why & How' of 4 Principal Wartime Cooling Applications

EDITOR'S NOTE: The four applications described on this and the following three pages are by no means the only outstanding examples of how refrigeration is fitting into *new* jobs in the War effort. (Many others are described in another section of this issue.)

However, the applications are among the most dramatic and most widely used, and we are indebted to Mr. Olin—whose department at Servel did much original research on these applications—for the details of these jobs.

By C. L. Olin, Manager, Sales Engineering Dept., Electric Refrigeration and Air Conditioning Division, Servel, Inc.

Blood Plasma

The general publicity of recent months given to the use of blood plasma has acquainted many with the fact that this is one of the most important contributions of recent years in the field of therapeutics. However, not often has emphasis been given to the role played by the refrigeration industry in this work.

Actually refrigeration is required through the entire cycle, starting with the preservation of the human blood on up to the point of final use as frozen or dried blood plasma.

Many metropolitan hospitals have been maintaining blood plasma banks for quite some time. However, the potential needs of our armed forces for blood plasma have given impetus to extensive developments in its collection, preparation and preservation.

The American Red Cross has been established as the collecting agency for the armed forces and under its supervision the blood from contributing donors is being obtained and shipped under refrigeration to strategically located processing stations at various points in the country.

Once the whole blood is received at the processing station it is immediately placed in centrifuging machines and the red and white corpuscles in this way separated from the plasma. The blood plasma, an opalescent amber colored fluid, is then siphoned off the top of the centrifuging flasks (into 400 c.c. bottles) and promptly frozen. In this state the plasma can be stored indefinitely.

In many cases freezing is accomplished by placing in a specially designed low temperature cabinet and freezing at a temperature of approximately —20°C. See Fig. 3.

Dr. Strumia's Blood Plasma Cabinet

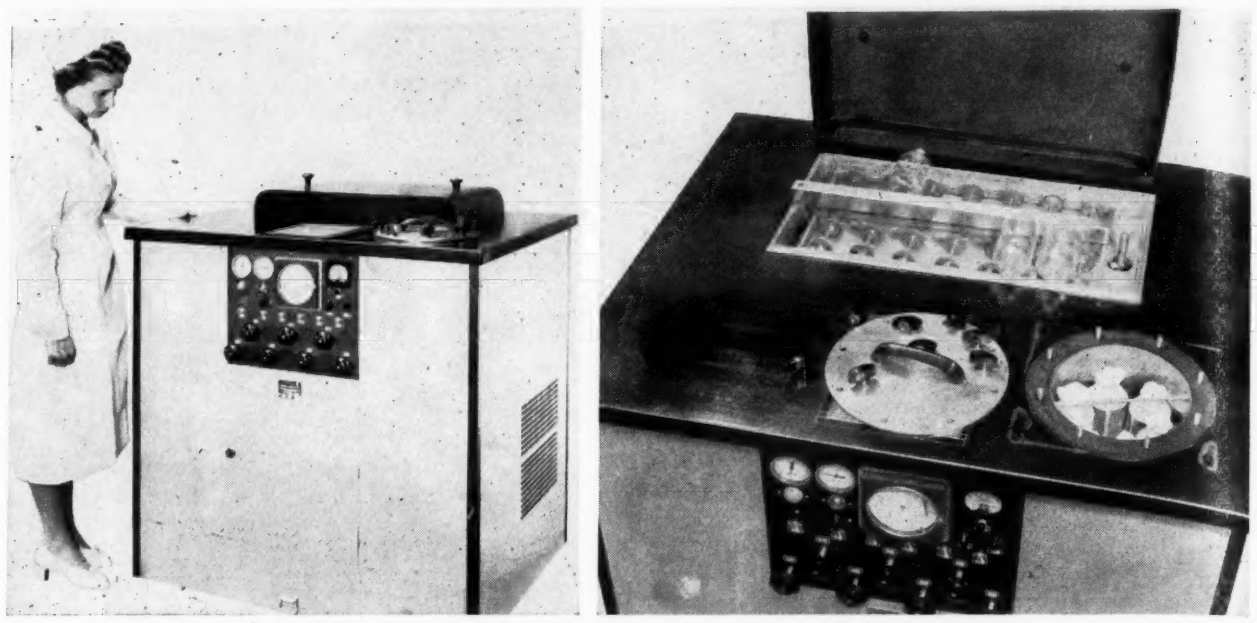


Fig. 1 (left) shows the front view of the blood plasma processing cabinet developed by Dr. Max Strumia, noted plasma authority, and manufactured by Precision Scientific Co., Chicago. Fig. 1A (right) is a top view of the cabinet showing the plasma in the shelling (freezing) stage in Dr. Strumia's cabinet.

In other instances the plasma is shell frozen, i.e. frozen by rotating the bottle in a cooling medium, usually alcohol, maintained at approximately —30°F. Figs. 1a and 2 are typical of equipment being made available for this purpose.

For the benefit of the armed forces in particular, the procedure is being extended and the frozen plasma converted to dried blood plasma. This is accomplished by desiccating from the frozen state under a high vacuum. (Finally the bottle of dried material is stoppered, evacuated and placed in an evacuated metal container. This is packaged with a container of 300 c.c. of pyrogen free sterile water, complete with instructions for intravenous adminstration).

Here again refrigeration plays the important part in providing a medium for condensing the moisture evaporated and drawn off the flasks of frozen plasma.

Fig. 1 illustrates a completely self-contained processing cabinet in which not only shell freezing is performed, but desiccation of the plasma as well.

Plasma Freezer

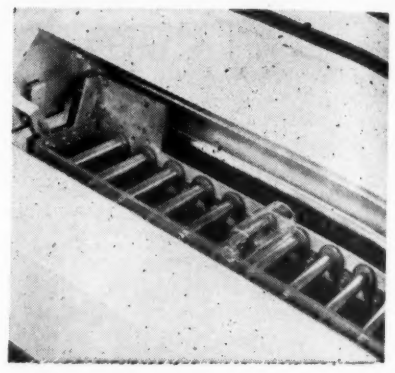


Fig. 2—The shelling or freezing stage in the blood plasma cabinet built by Deepfreeze Div. of Motor Products Corp., North Chicago, Ill.

Storage Cabinet

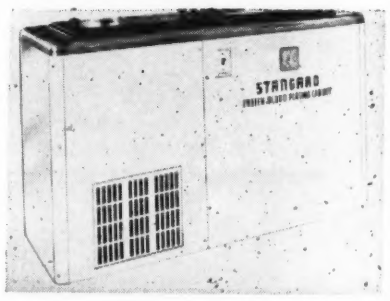


Fig. 3—Typical special plasma freezing and storage cabinet built by Stangard-Dickerson Co., Newark, N. J.

Spot Welder Tip Refrigeration

Within the last few years manufacturers of spot welding equipment have focused their attention on the development of resistance type welders for welding of aluminum and aluminum alloys. Rather radical departures from the design of conventional alternating current welding equipment were found to be desirable. More accurate control had to be incorporated, improved methods of applying energy had to be devised and changes in general machine construction were found to be necessary—all resulting in it now being possible to satisfactorily meet the rigid requirements of the aircraft industry.

One of the trying problems has been that of electrode deterioration, resulting from the high current required (and consequent high temperature) due to the low electrical resistance of aluminum and aluminum alloys. This characteristic has resulted in the "mushrooming" of the electrodes due to softening and has contributed to and accelerated the alloying of aluminum to the electrode face, referred to as "Alclad pick-up".

In the correction of such condition, it of course has been necessary to dress down the electrodes and the pick-up has to be removed at brief intervals by manually burnishing and polishing the tip faces.

From the start, provisions were made to watercool the welder tips in the conventional manner—i.e. with water being circulated through and within the tips (and welder horns or holders as well). However, research confirmed that "tap water" cooling had definite limitations in so far as

(Continued on Page 9, Column 1)

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Copeland — MADE IN U.S.A. - SINCE 1914

Kelvinator — REFRIGERATION BY — MADE BY THE EBCO MANUFACTURING CO. COLUMBUS, OHIO U. S. A.

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Since the birth of the industry the EBCO name has been in the center of the commercial water cooler picture. Visualizing early a healthy Nation's need for properly cooled drinking water, they assumed the pioneer's role . . . . took the lead in designing and manufacturing a commercially practical water cooler. And this early gained leadership has never been relinquished! Devoted to this one product; EBCO has made continual improvement in its efficiency, appearance and serviceability. But even more important to manufacturers and marketers of water coolers,

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has long been an outstanding example of streamlined production methods . . . . building water coolers on a continuous straight-line basis that means economy, better fabrication, and an all around higher-quality finished job. These are some of the reasons most leading manufacturers depend so greatly on EBCO as their prime source for finished water coolers. If you are not fully familiar with EBCO'S facilities, let us discuss your needs. Phone or write TODAY. No obligation.

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WARD REFRIGERATOR & MANUFACTURING CO.

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How Refrigeration Fights

Spot Welding and Machine Tool Jobs Are Done Better, Faster With Refrigeration

(Continued from Page 8, Column 4)

retarding electrode deterioration and that a refrigerated coolant was indicated.

More recent exeperimentation has disclosed that "tip life" could be increased manyfold using a coolant of sub-freezing temperature. (The number of spots possible between the electrode cleaning operations being regarded as the tip life).

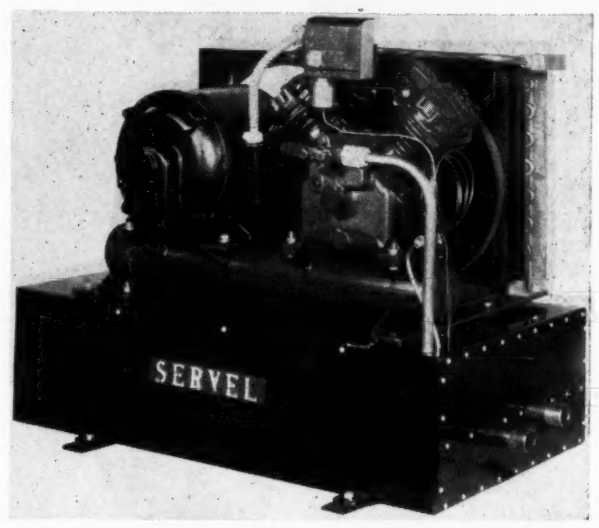
These studies too have brought to light that the quality of the weld and the shear strength can be improved using a refrigerated coolant; cured empirically.

As typical of the technique employed, Fig. 4 and 4a illustrate a spot welder tip cooler design suitable to meet the requirements of the "medium duty" spot welder shown in Fig. 5. (This class of spot welder has a capacity to weld two pieces of aluminum in the thickness range of .016 to .090 inches and a capacity of approximately eighty spots per minute, welding two pieces of the thinner thickness).

With the application of refrigerated coolant it has been possible not only to improve the quality of the weld and the shear strength of the weld but to step up the "tip life" to a revolutionary degree ranging from two hundred per cent to eight and nine hundred per cent, resulting in

(Continued on Page 10, Column 1)

Typical Hookup for Coolant Cooler



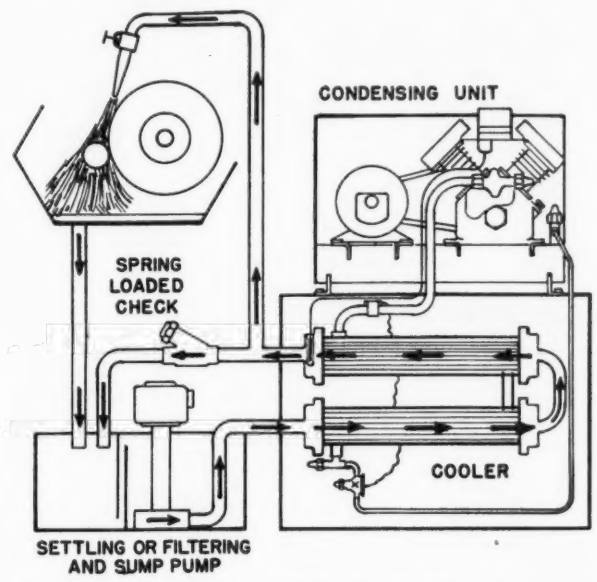


Fig. 6 (left) is a typical self-contained condensing unit which is used in conjunction with a coolant cooler. The unit is built by Servel, Inc., Evansville, Ind. Fig. 6A (right) shows the cycle of operation in a typical coolant cooler designed by Servel.

Spot Welder Tip Cooler

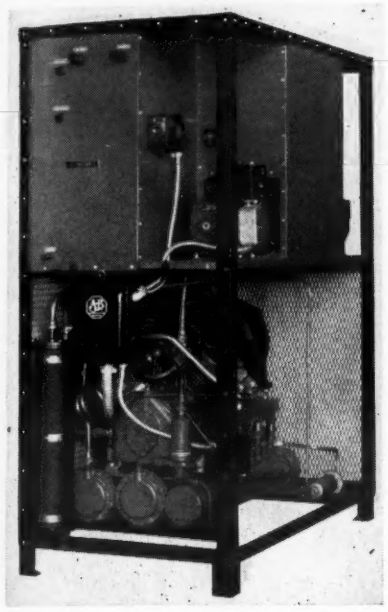


Fig. 4—This is the spot welder tip cooler made by Fairbanks-Morse Co., Chicago.

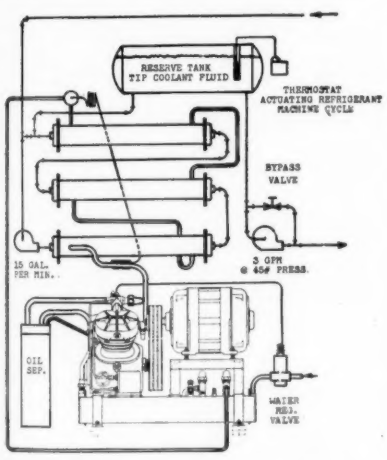


Fig. 4A shows the refrigeration cycle of the Fairbanks-Morse spot welder tip cooler illustrated in Fig. 4.

in fact it has been the consensus of opinion of operators that a coolant temperature of approximately 0°F. is the most desirable, all factors considered.

As an application of refrigeration the problem has been somewhat complicated in view of the apparent wide disparity between the theoretical refrigeration load and the actual, se-

Typical Welder

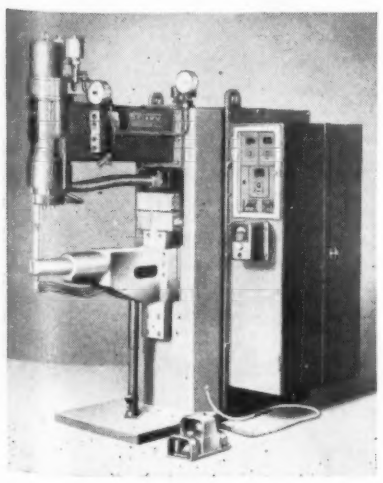


Fig. 5 is a typical medium duty spot welder built by Sciacky Bros. Co., Chicago. Use of a spot welder tip cooler with this machine steps up the tip life as well as improving the quality of the weld.

IN THE YEARS before Pearl Harbor, more new tonnage of refrigeration machinery was being built for "Freon" than for all other refrigerants combined. That's still an important fact, because it shows the wide acceptance of "Freon" by the refrigeration and air conditioning industry—but of still greater importance is the way "Freon" meets present-day conditions. Here's how "Freon" measures up in wartime:

No other refrigerant is safer for home, industrial, or military installation. "Freon" was developed by Dr. Thomas Midgley, an American, to meet American industry's insistent demand for a group of non-toxic, non-flammable refrigerants. It meets all specifications for safety of life and property set by the U. S. Bureau of Mines and the Underwriters' Laboratories.

It's harmless to foods and textiles. There is no danger of loss of food or other vital supplies when refrigerant leakage occurs if "Freon" is used. These facts, coupled with "Freon's" other safety properties, make it possible to place a "Freon" installation practically anywhere—even below decks on shipboard!

Non-corrosive to metals that are used in refrigeration equipment. In peace-time this permits selection of metals which provide maximum heat transfer and efficiency. Today it leaves designers of "Freon" equipment free to substitute *available* metals for those unavailable or on the critical list due to war shortages.

Efficient in all size units — "Freon" is as adaptable to small, fractional horsepower units as to commercial refrigeration equipment of hundreds of tons capacity. For example — a large majority of the electric household refrigerators built in recent years use "Freon," yet this refrigerant is also used in equipment furnishing over 23,000 tons of refrigeration for air conditioning our Nation's Capitol and other large government buildings in Washington, D. C.

Available from adequate supplies — Plant capacity and raw material supplies have been adequate since early this year and remain adequate, to furnish "Freon" for all permissible uses in the United States and friendly foreign nations. Furthermore, stocks of "Freon" are maintained by this company in 35 warehouses strategically located throughout the country. And this is in addition to stocks in the hands of thousands of distributors and our armed forces.

Thanks to these factors, and to the careful use of refrigerants and prompt return of cylinders now practiced by the industry, there should be no shortage of "Freon"—the refrigerant best fitted to do a wartime job on every front!

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safe refrigerants

"Freon" is Kinetic's registered trade mark for its fluorine refrigerants

KINETIC CHEMICALS, INC., TENTH & MARKET STREETS, WILMINGTON, DELAWARE

How Refrigeration Fights

Freezing Storage of Metals Helps To Add Quality and Speed To U.S. War Production

(Continued from Page 9, Column 2)

great savings in time and labor.

Again the refrigeration industry has scored in aiding the war effort.

Coolant Cooling

The use of cutting fluids or coolants in the machine tool industry has been common practice for a great many years; probably dating back to the 1880's when F. W. Taylor demonstrated that cutting speeds could be increased 30 to 40% by directing a heavy stream of water on the cutting tool when turning steel.

This practice, along with the general advancement of the art in the development of better cutting tools and better grinding wheels, and in the improved machine tool construction and design, have resulted in greatly accelerated outputs as compared to production of years ago.

Through the years the capacity (in machine work accomplished) of these machine tools has been speeded up and as closer tolerances have been specified the problem of removing the heat generated at the cutter tool or grinding wheel has become more acute; not only because of heat gain of the part being machined complicating possibility for accurate measurement but also because the life of cutting tools and grinding wheels was affected.

In some plants water cooling of the cutting fluid was resorted to and in a few instances refrigeration was applied.

The tremendous demand for increased production and even closer machined tolerances that has faced the machine tool industry in handling the needs of the war effort has crystallized action toward development of equipment for definitely controlling coolant temperature using refrigeration.

Typical of the development along these lines is the self-contained coolant cooler illustrated in Figs. 6 and 6a.

In line with modern practice of unitizing machine tools, such a coolant is designed to accommodate a single machine tool and is installed as an integral part of same.

The great range of coolants used starting with aqueous solutions and including soluble oils, straight cutting oils, mineral-lard oils and sulphurized oils, has required careful study and experimentation to develop a refrigerated "package unit" to meet the needs.

For those machine tools now limited in output due to the heat gain of the work (from machine operation) and of cutting tool or grinding wheel fatigue and wear, refrigerated coolant equipment makes possible increased output.

Further, no longer is it necessary, when checking or gauging machined work to compensate for temperature pick-up from the machining operation. Even the most exacting tolerances can be maintained.

Here again the refrigeration industry is aiding the war effort in making possible maintained accuracy and greater output from war production machines.

Sub-Zero Applications

Among the many uses served by refrigeration in furthering the war effort, the field of sub-zero applications is certainly among the most significant.

The very nature of some of the processes affected precludes the possibility of submitting detailed description. However, some of the important general types of use can be outlined as follows:

A. Refrigeration Required in Processing and Handling Aluminum Alloy Rivets

A great wealth of research and experience has gone into the development of suitable materials for the aircraft industry. Important among these has been the development and treatment of aluminum alloy rivets.

The riveting operation tends to harden rivets and thereby adversely affect the ultimate tensile and yield strength of the rivets. To offset this special alloys were developed (No. 17S-T and No. 24S-T) and heat treatment (annealing) devised to assure the rivets reaching the point of actual use in a "dead soft" condition.

Current practice calls for the rivets to be reduced in temperature to —40° to —45° immediately following the cold quenching operation of the annealing process.

Under these low temperature conditions the No. 17S-T rivet can be held without appreciable "age hardening" for a reasonable period (up to about ten days). However, the No. 24S-T must be conveyed under these low temperatures to the point of use and used immediately.

Where large quantities of rivets are used special low temperature refrigerators (See Fig. 7) are located at the annealing station and once the rivets have been reduced in temperature to the "holding temperature" they are conveyed to the point of use and placed in portable special low temperature storage cabinets. Figs. 8 and 8a are typical of the type of cabinet used for this purpose.

Industrial Storage Chest

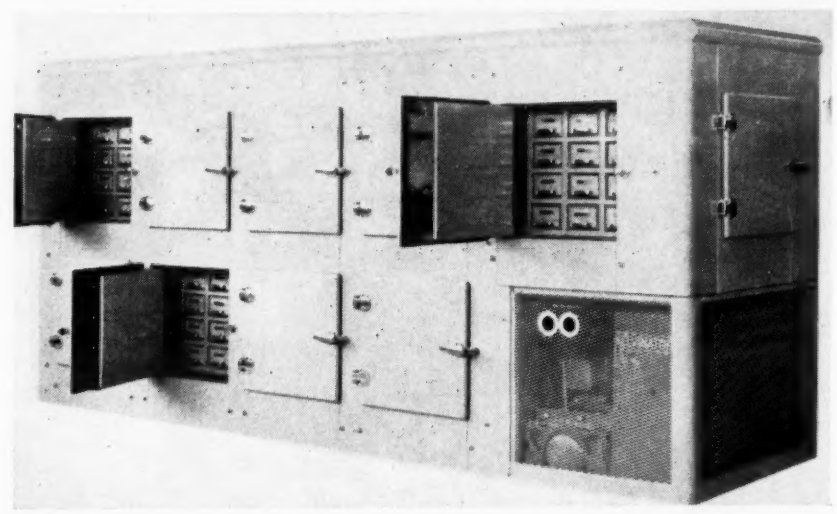

Fig. 7—This industrial storage chest, built by Kold-Hold, Inc., is used to store annealed rivets at low temperatures until they are to be used in manufacturing or assembly operations.

Here again the refrigeration industry is successfully meeting the heavy demands made upon it for equipment of this nature, playing an important part in making it possible to produce better planes in less time.

B. Use of Low Temperatures for "Expansion Fit" Operations

The use of low temperatures in securing "expansion fits" is a comparatively recent revolutionary process supplanting "shrink fitting" of earlier years. Whereas it has been common practice for many years to heat up one machined part and slide it over the companion part and allow it to shrink tightly into place on cooling, a great many of these same operations are now being handled in the reverse procedure by chilling the companion part, sliding it into the other and allowing it to expand tightly into place on reaching room temperature.

The advantages are obvious as there is no hazard of oxidizing involved and no final or finishing machine work need be made.

Almost daily new uses of this technique are coming to light but its application to valve seat insert of engine block, ball and roller bearing races, and the application of a great many types of pulleys, gears, etc. to chilled shafts are typical of the uses in this field.

Further, aside from replacing many of the operations of the "shrink fit" category, expansion fit technique is being used more and more in place of press fit, all of which has released many skilled workers for other important tasks. One type cabinet is shown in Fig. 9.

Temperatures required range from —50°F. to —90°F. and for the lower end of this range special condensing units have been made available.

The very nature and location of the installations involved usually has limited the type of refrigerant to be used. To meet this demand two and three stage type condensing units have ben developed for use with Freon-12 in securing refrigerant tem-

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Shrink Cabinet

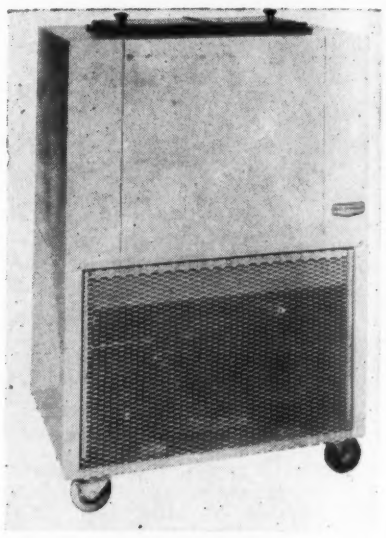

Fig. 9—A portable chill shrink cabinet like this is used for many "expansion fit" operations.

Rivet Storage Machine

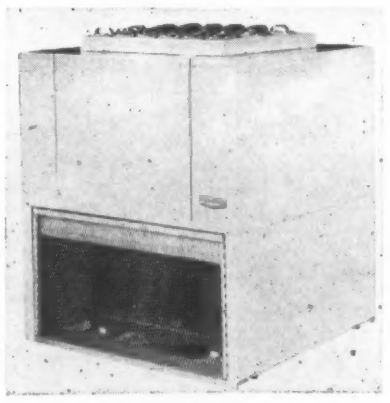

Fig. 8—This Kold-Hold rivet storage machine keeps rivets at the proper temperature in the department where they will be used.

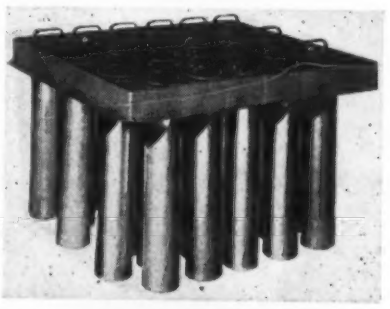

Fig. 8A shows a rivet tube assembly for use in machine illustrated in Fig. 8.

Two-Stage Cycle

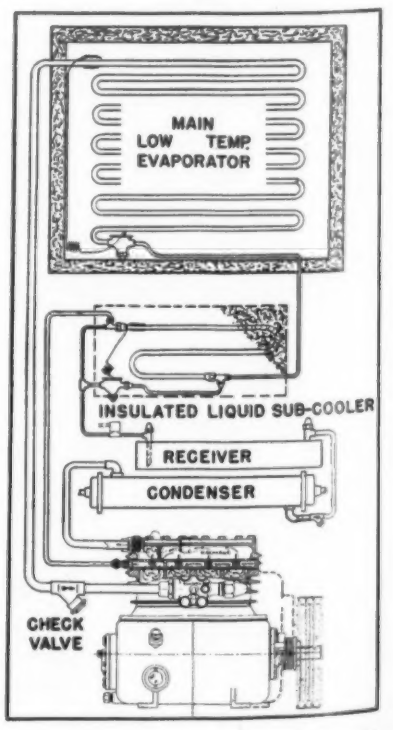

Fig. 10—Cycle of operation of the Servel 2-stage system which is used in applications requiring temperatures below —50° F.

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AT HOME . . .

Servel condensing units are doing their part in the battle of production by cooling coolants in machine shops, by chilling aircraft parts, by shrinking parts for precision fits, by aging tool steel, by serving in x-ray photography laboratories.

Thousands of Servel units are also preserving food, cooling water, and doing other vital cooling "chores" in the nation's training camps, factories, locker plants, and food stores.

AND ABROAD . . .

Servel condensing units have sailed the seven seas to the far-flung bases of the United Nations. In helping to fight the battle on the front line, they are doing their regular job of food preservation, plus a score of special jobs — such as freezing and storing plasma and serums, preserving aviators' fur suits, and many others of a special and vital nature.

For details of Servel's wartime applications, write today to Servel, Inc., Electric Refrigeration & Air Conditioning Division, Evansville, Indiana.

SERVEL COMMERCIAL REFRIGERATION AND AIR CONDITIONING

Industrial Sub-Zero Machine

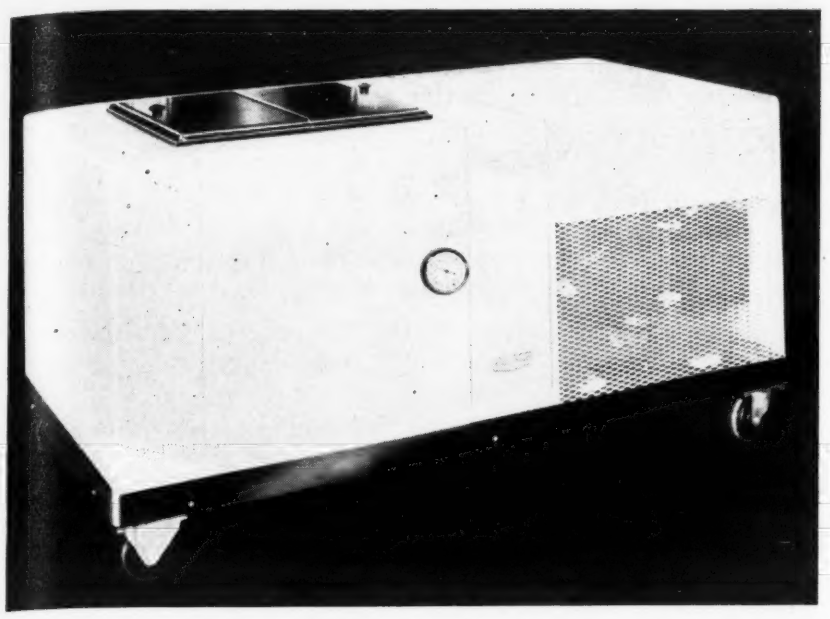

Fig. 11—This portable horizontal industrial sub-zero machine is being used in the aging of steel.

Only Mechanical Refrigeration Can Supply Conditions To Match the Stratosphere

(Concluded from Page 10, Column 5)

peratures as low as —100° F.

Fig. 10 is a schematic diagram of the two-stage cycle, not only illustrating how this is accomplished within the single cylinder block but also the use of a sub-cooler for reducing the temperature of the liquid refrigerant to the expansion valve of the first stage.

When it is realized that prior to the advent of the emergency the apparent need for this type of equipment was negligible, it can be more fully realized the work accomplished by the refrigeration industry in making such fixtures and condensing units available in quantity over a comparatively very short period.

C. Use of Low Temperatures in The Aging of Steel

Practically the same types of cabinets (See Figs. 11 and 12) and condensing units as described in the foregoing are being used in the manufacture of precision instruments, gauges, etc. to accomplish quick aging of steel to prevent

Heretofore after performing all but the last few finishing operations (of grinding or lapping) it has been necessary to season the work, subjecting it to atmospheric conditions over a considerable period to prevent the infinitesimal change in shapes (after final processing) referred to as "growth." Currently a great portion of this work is now performed utilizing the low temperature treatment, making it possible to secure the same stabilization of the steel in a few hours that formerly took years in some instances. The savings in time and material are obvious.

D. Use of Refrigeration in Testing Aircraft Instruments

In modern day warfare the demand is for faster planes to fly higher altitudes. Without the use of refrigeration to simulate flying conditions in the upper stratosphere it would have been practically impossible for the aircraft industry to have developed stratosphere bombers and fighting craft to their present point of perfection.

A glance at the following table will indicate the need for testing aircraft apparatus operating under conditions of low temperature (and low barometric pressure).

DESIGN CONDITIONS FOR TESTING OF AERONAUTIC INSTRUMENTS

Altitude	Temperature†	Pressure*	Vacuum Inches Gauge
25,000	—30°F	11.1"	18.82
30,000	—47°F	8.8"	21.12
35,000	—65°F	7.03"	22.89
40,000	—67°F	5.5"	24.42

* Absolute pressure

† Temperature of —67° holds for altitudes above 36,000 ft.

Per National Advisory Committee of Aeronautics.

Here again the refrigeration industry has come forward with apparatus and special condensing units to facilitate testing instruments and equipment and in fact entire airplane sub-assemblies, enabling aeronautic engineers to anticipate performance in the "fighting altitudes" of today.

Fig. 13 is illustrative of the type of stratosphere chamber being used in this form of test work.

Stratosphere Cabinet

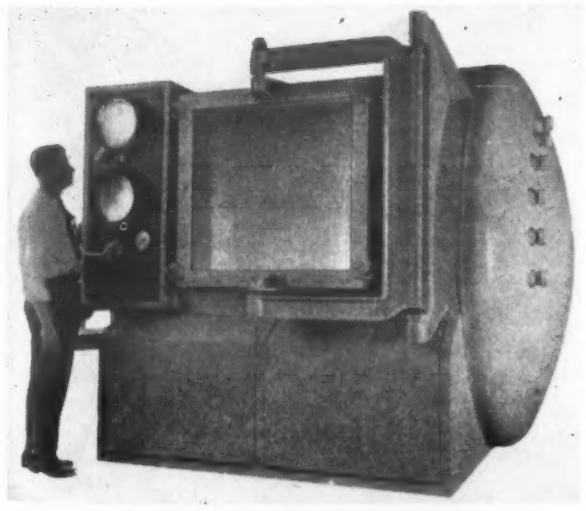

Fig. 13 is a Kold-Hold Stratosphere chamber which is used in testing aircraft instruments to check their operation at low temperatures.

Santocel Unit

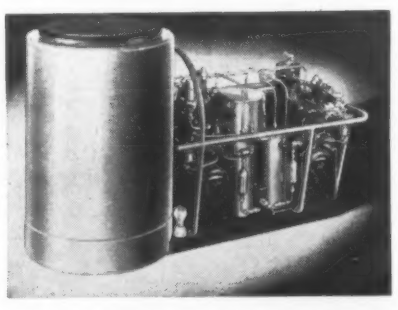

Fig. 12 — Deepfreeze Santocel Cascade unit is also used in industrial applications requiring temperatures down to —120° F.

Again, non-toxic, non-flammable refrigerants have been a mandatory requirement and special two and three stage condensing units are being produced to meet this need.

Everything about the plane that might be affected by the stratosphere conditions, whether it be radio equipment, oxygen regulating valves or the flying instruments, are being tested in this manner, stepping up plane production and assuring accurate flight control.

Wood Furniture Industry Can Help Alleviate Civilian Shortages

WASHINGTON, D. C.—The wood furniture industry can help in alleviating shortages of many civilian products normally made of metal by using its facilities to make such articles out of wood, W. A. Adams, Chief of the War Production Board Furniture Branch said today.

At the same time, Mr. Adams cautioned that high quality lumbers must be used primarily for military purposes, and that the wood furniture industry, therefore, should use the lowest grades that will yield cuttings of suitable quality, sizes.

According to the Lumber and Lumber Products Branch, the high common grades and the top structural timbers of softwood lumber and the No. 1 common and better grades of hardwoods should be conserved for war purposes.

Mr. Adams listed the following as examples of products that must be made of materials other than metal if adequate quantities are to be available for essential civilian and industrial purposes: Lockers, shelving, ice boxes, wash tubs, shipping containers, pails for home and civilian defense use, stirrup pumps for incendiary bomb protection, factory conveyors and track, lamps, trailers, and truck and bus bodies.

New developments in the use of plywood make possible a greater utilization of wood than has ever been possible in the past, he said.

it's cooler because...

One of Universal Cooler's big jobs is the mass production of water chests and pumps for cooling machine guns . . . to give our fighters the 3-to-1 advantage of being able to keep a machine gun spitting hot lead three times as long as an uncooled Axis gun. • And speaking of guns, Universal Cooler's production of oil gears for the fast, accurate aiming of anti-aircraft guns and heavy artillery is another example of how our "cooling" experience is helping America make things "hotter" for the Axis. These important Victory weapons are only part of Universal Cooler's all-out war production. Mobile refrigerating units for the Marines, cold storage units for Army warehouses and giant refrigerating units for the Navy are being turned out at record-breaking speeds as a result of experience and equipment acquired during 22 years of producing a major portion of the commercial refrigerating units in use today. • Universal Cooler engineers will continue to speed war production. And their plans for the future are combining the "years ahead achievements" of total war effort with the accomplishments of the past. The result will contribute to a quicker United Nation's victory . . . and to the "finest ever" Universal Cooler Refrigerating Units; built to play a vital role in the "better living" of the post-war world.

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Air Conditioning & REFRIGERATION NEWS

Trade Mark registered U. S. Patent Office; Established 1926 and registered as Electric Refrigeration News

F. M. COCKRELL, *Founder*

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Refrigeration Will Help Win the War

Why So Many Questionnaires

RULE for making yourself unpopular with manufacturers these days: send him another questionnaire. Manufacturers are questionnaire-dizzy. Every mail brings them another truckload of forms to be filled out in sextuplicate, of questionnaires asking for information which requires patient research through voluminous files, of reports to be filled out which ask for information in a form that calls for intricate translation and permutation, or for information on which no records have ever been kept.

Manufacturers resent all this expensive research, particularly because the men whom they once could have assigned to it are now, in all likelihood, in the Army. They also ask, in righteous indignation: Do they want us to turn out war materiel, or do they want us to do goofy paperwork?

At the same time, the war effort is being stymied because the War Production Board lacks sufficient information. Plants are slowing up, closing down, because of raw materials shortages. These shortages are admittedly the result of maldistribution due to uninformed allocating. The WPB itself admits it doesn't know just where the raw materials go. It wishes to heaven it did, but the information just isn't available.

Another great criticism of the war direction is the confusion of conflicting statements made and opinions held by the various agency heads. Here again the difficulty is insufficient information. Let us illustrate:

Congress is currently trying to decide how to raise some 7 billions of dollars in taxes. In stipulating just how much each income bracket shall pay in personal taxes, Congress has access to three sets of estimates as to just how many people are in each group, and what were their total earnings.

These estimates come from the OPA, the Department of Commerce, and the Treasury Department. The OPA's figures on the income collected by those in the $10,000-and-up bracket are more than double the Treasury estimates. Just how much that crowd of bigger-money earners will get soaked depends on which set of estimates is accepted.

THE 'SAMPLING' TECHNIQUE

Why the wide variation? Primarily, because the estimates were based on "sampling." This is the Gallup Poll technique. You collect a few "typical" figures, and "weight" them according to a complicated formula, then multiply astronomically to get your total. Thus an original error can be magnified outrageously.

All the Washington statisticians we have yet encountered are devotees of this school. It is taught, we understand, in many leading universities and graduate schools. No doubt, in a nation the size of the United States, it provides the only practical method of arriving at many statistical estimates.

It does worry us, however, to note the blind acceptance of statistics obtained by this technique. Officials, it seems to us, are too prone to request their subordinates for certain statistics and then, when they get said "statistics," accept them *without questioning how they were arrived at,* quote them, and act upon them as if they were absolutely the last word in accuracy.

Such blind faith in the statisticians has already cost several "brass hats" their jobs; other public careers will likely be wrecked on the same rocks.

We are not prepared, in this editorial at least, to debate the merits of the "sampling technique." What we do say is that the original data on which it is based must be pretty darned good or the end result is going to be sad.

In some cases, apparently, the statisticians have taken the height of the Washington monument, multiplied by the cubic inches of unburned tobacco found by scrubwomen in pipes left on desks of Temporary Building R on the night of June 13, added the years spent by Washington stenographers in restrooms, divided by the number of lawyers hired last January who are still trying to find out what they're supposed to do, and finally arrived at the number of flare nuts which should be lend-leased to Graustark in the third quarter.

WHY QUESTIONNAIRES DESERVE CLOSEST ATTENTION

Now! Do you see why filling out questionnaires may be desperately important? If the samplists start with inadequate information, the results, in the words of the Old Man from Paree in that notorious limerick, are apt to be "most 'orrid."

Obviously if any one of us thought his personal tax bill was going to be affected by several hundreds of dollars because some group of statisticians didn't have enough information to go on, and were "extrapolating" data which was wrong in the first place, we'd certainly fill out any questionnaires sent to us by such statisticians with alacrity.

Same situation is true in the rubber mess. Each agency head who is remotely concerned has passed the word down to subordinates to "get the figures." These subordinates have done the best they could to pyramid a small "sampling" of data into national statistics. All, of course, arrive at radically different totals.

Some day pretty soon somebody on high will have to make a decision based on these inadequate and inaccurate reports. He will likely be wrong either way. He may decide not to gas-ration the Middle West and West, and discover next year that the nation's tires are all shot. Or, he may decide to ration the entire country, and learn next year that essential cars are still running and tires are still rotting in storage.

ANSWER TO DILEMMA: EXPERT QUESTIONNAIRES

What's the answer to this dilemma? How can we relieve manufacturers from some of the burden of filling out tremendous forms, and at the same time provide the War Production Board with the information it needs to make the decisions that so deeply affect those very manufacturers?

Our own view, based on rather harrowing personal experience, is that the wrong people are asking the questions. All questionnaires should be drawn up by somebody *who knows the industry from top to bottom.* The questionnaire drawer-upper *should know in what form the industry keeps its information,* should call for information that is *readily available.*

What's more, the only information asked for should be *significant* information.

'SELL' THE NEED AND USE FOR STATISTICAL INFORMATION

Next, questionnaires should be accompanied by a note of explanation as to *why the information is wanted.* If people knew what tremendous decisions awaited the compilation of some statistics, they might jump to provide the answers.

Too often the questionnaires which reach a manufacturer's desk not only do not state their "end use," but are so phrased or so "defined" that they don't make sense at all to the manufacturer. They often call for quite irrelevant information, while overlooking certain key statistics which would indeed be revealing. No wonder the manufacturer swears beneath his breath!

The writer was called down to Washington last month and sworn in as a Consultant to the War Production Board rather unexpectedly—for what, he did not know. When he arrived, the following problem was put up to him:

A committee had to decide how much commercial refrigeration and air conditioning equipment should be turned out next year for the Army, Navy, Maritime Commission, Lend-Lease, Board of Economic Warfare, and essential civilian uses. Four interested departments of the WPB were each asking the other for statistics which might give them a clue to programs which each could recommend to the committee. None of them had any answers. Neither did the Army or Navy.

It is unnecessary for our purposes here (and would be unkind) to go into the sordid details. Suffice it to say, the only method which seemed open to them of collecting this information had, after days of research, *turned up no needs or uses for refrigeration at all.*

As a longtime industry statistician, the writer was commissioned to go out and get the information. This issue is the result. No credit is due to us—we simply knew where to go for the information, what information was available, and what statistics would be essential in order to arrive at intelligent decisions. We didn't get all the dope all the agencies asked for, but some of the things they asked for had no bearing on the situation.

With few exceptions, the people from whom we solicited statistics were most helpful and cooperative. Chief reason, we think, is that the questions were so asked as to conform with existing records—thus making it relatively easy to secure the answers.

REFRIGERATION SO COMPLEX IT'S A STATISTICIAN'S NIGHTMARE

There probably isn't a more complex industry in the country from which to gather statistics than commercial refrigeration and air conditioning. First, there are a great many different products involved. Second, each product is composed of many sub-assemblies, the end use of which is difficult for the original manufacturer to trace. Third, complete units are partly "packaged" at the factory and partly "tailor made" in the field.

A simple analogy might be the men's clothing business. Suppose a statistician set out to secure the numbers and dollar volume (produced in a given period in the United States) of men's suits, overcoats, topcoats, hats, caps, shirts, ties, sox, underwear (longies, shirts and pants, jockey shorts, button shorts), broken down by sizes, colors, patterns, types of material, and styles.

He could start out by getting the figures of the "complete unit" (factory made) manufacturers. Then he'd attempt to trace the quantities of materials sold to tailors and shirtmakers, allowing for fabrics going into women's and children's clothing, and arriving at some sort of average price per unit. Next, he'd have to get estimates on the homemade market. Then he'd put them all together, estimate the units produced from areas on which no records were kept, and arrive at total figures.

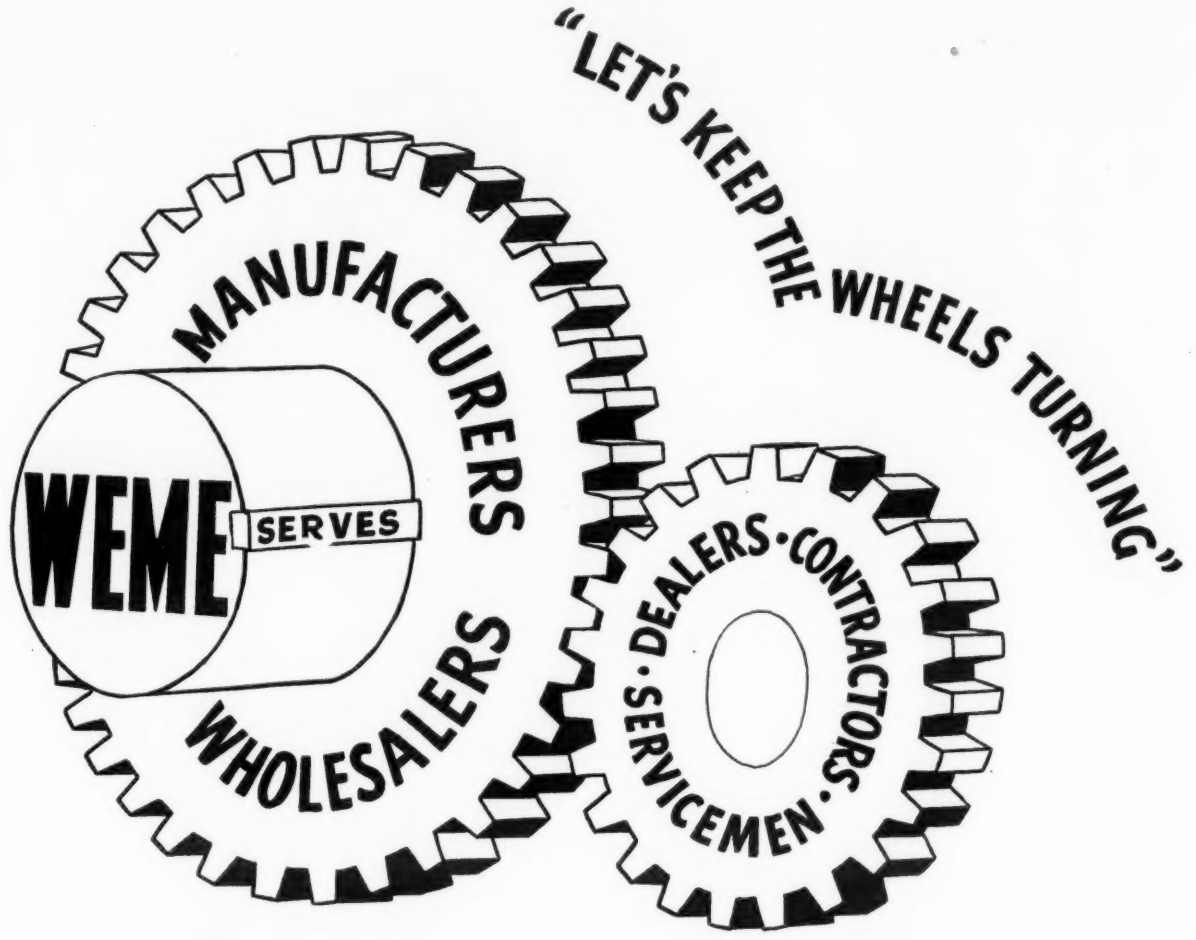
See the complications? Well, multiply by 13 and you have some conception of the task facing those who would gather statistics on commercial refrigeration and air conditioning.

ENTIRE INDUSTRY COOPERATED; 'KEY' FIGURES PROVIDE CHECK

Nevertheless, we have considerable confidence in our figures. Every producer in the business subscribes to the NEWS, knows us, and practically all have cooperated. The biggest task has been to separate tangled threads resulting from one manufacturer incorporating the products of another in his line, and from the tailor-made "on the spot" assemblies. Fortunately, there are a few key figures which afford an accurate check on many of the totals.

Back to the annoying questionnaires: We have the fullest sympathy for the War Production Board in its urgent desire for more and better statistics. If they don't get them, grievous errors will be made for which they will be blamed. We also sympathize with the harassed manufacturers.

The solution, we repeat, is to choose carefully the people who ask the questions. They should be experts. And they should utilize their detailed knowledge of an industry to extract the needed information as painlessly as possible.



Announcing

THE WEME SYSTEM OF INVENTORY EXCHANGE

Filling an urgent Wartime need of the Refrigeration Industry

How WEME Inventory Exchange Breaks Bottlenecks

The War Emergency Materials Exchange is a privately-financed, non-governmental institution, organized to help eliminate the critical mal-distribution of inventories hampering the war effort of this industry. Already, W.E.M.E. has proved its usefulness in breaking bottlenecks through taking urgently needed refrigeration products inventories from areas where they were not being utilized and concentrating them in spots where they fulfilled their greatest usefulness.

This is W.E.M.E.'s business—to expedite the exchange distribution of products in the hands of refrigeration manufacturers and wholesalers. Participation in the W.E.M.E. exchange plan is purely voluntary, and is restricted to firms with established business records. W.E.M.E. is not in business for the sole purpose of handling distress merchandise at sacrifice prices.

In functioning exclusively with the wholesaling and manufacturing branches of the industry, W.E.M.E.'s operation in no way alters the distribution of refrigeration products to the retail trade through regular trade channels. In fact, by uncovering dormant stocks, it facilitates movement of these products into retailers' hands.

How WEME Helps Every Branch of the Industry

In frequent and repeated instances, excessive inventories of finished parts and supplies today lie idle in manufacturers' and wholesalers' stocks. Often these products are urgently needed by others in the industry. W.E.M.E.'s job is to provide a centralized means of inventory transfer for supplier and buyer through maintenance of complete, up-to-date inventory control records.

For example: Thousands of essential condensing unit parts were recently required by a manufacturer working on a large war contract. Through the W.E.M.E. System of Inventory Exchange, these parts were located in an idle stock and shipped to him within 24 hours.

In another instance, a midwestern wholesaler, in need of several dozen parts required for fulfillment of a civilian maintenance order, enlisted the services of W.E.M.E. which obtained the needed parts the same day from an Eastern jobber's overbalanced supply.

In these typical instances, W.E.M.E.'s services helped suppliers move burdensome excess inventories. More important, prompt deliveries eliminated costly manufacturing delays, saved critically needed raw materials, and man hours of labor.

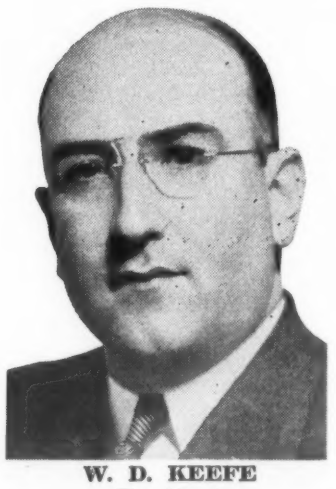
To manufacturers, jobbers and distributors in every branch of the industry, W.E.M.E. offers a timely wartime service for either locating or moving surplus inventories of materials, parts, equipment, tools and supplies used in the original equipment or replacement fields, regardless of the volume involved.

Put WEME to Work Solving YOUR Wartime Problems

To obtain quickly the items you need, to eliminate unused items in your inventory (avoiding their possible reduction to scrap value), to save materials and labor, to help the war effort and the civilian economy through keeping refrigeration equipment running, put the W.E.M.E. Inventory Exchange plan to work for you now. As a start, check your inventory AND your requirements today. By mail, wire or phone, send W.E.M.E. a list of your surplus products, a list of the products you need. Give quantities and model numbers. Where feasible, also send descriptive literature and blueprints. W.E.M.E. will go to work for you the minute your communication arrives. ALL INQUIRIES FROM EITHER SUPPLIER OR BUYER WILL BE HELD IN STRICT CONFIDENCE.

These Men Head the WEME Organization

Over 40 years of experience in the refrigeration industry are represented by the men who guide the organization of the War Emergency Materials Exchange.



W. D. KEEFE
President

Mr. William D. Keefe has devoted his business lifetime to the manufacture and distribution of refrigeration products. He brings to the W.E.M.E. organization his rounded knowledge of the industry's problems and a complete understanding of manufacturers' and wholesalers' operating problems and needs.

As a member of the original WPB Advisory Committee charting operations in the refrigerating and air conditioning industry, he saw the need for a service making possible the exchange and utilization of unbalanced inventories between the many producing and distributing units within the industry.

Mr. Keefe is devoting his entire time and experience to the War Emergency Materials Exchange.

J. M. OBERC
Vice President

Mr. J. M. Oberc has a long and successful record in the field of inventory control gained during 20 years of experience in the manufacturing and distribution of refrigeration products.

He is thoroughly familiar with all types of refrigeration equipment,—their makes, their models, their applications.

He knows what is needed, where it is needed, and how it must meet installation requirements.

WAR EMERGENCY MATERIALS EXCHANGE

900 W. BALTIMORE DETROIT

Telephone: MAdison 1080

"Let's keep the wheels turning"

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

How One Company Organized To Ferret Out 100% of Its Scrap

By G. H. Anglin
General Planning Superintendent and Salvage Manager, Carrier Corp.

This year's salvage program of the Carrier Corp. has resulted in cleaning out well over a million pounds of metal and other materials which have been sent on their way as scrap to help fill the country's need for war production. Included were cast iron radiators, metal tools, jigs and fixtures, and two and a half miles of old pipe, besides miscellaneous collections of rubber, aluminum lamp shades and the normal salvaging of metal shavings and chips.

When the operations of six plants were consolidated at the large Syracuse plant in 1937 a thorough housecleaning was undertaken. We have discovered, however, that on the first cleanup, or the second or third, materials which can be scrapped still will have been overlooked, as witness our experience in the present scrap drive.

A salvage or scrap campaign doesn't mean, of course that any organization should go out and practically throw out everything in sight which has no immediate use. For example tool steel which is obsolete can readily be sold "as is" because there is a crying need for it. But by proper organization and use of simple salvage equipment, tons of materials can be diverted to the all-important need for metal scrap in production of tanks, guns, ships and planes for the war effort.

DRASTIC NEED FOR SCRAP

We have been informed that steel mills' inventories of scrap iron and steel have shrunk more than 45% over the past 18 months of record-breaking steel production, and now represent an average for the entire steel industry of little more than two weeks' supply at the present rate of consumption.

The tonnage on hand in the steel industry on Jan. 1, 1941, was 3,934,000 tons, a satisfactory stock representing over six weeks' supply at the rate of consumption during 1940. But the shrinkage since then has put the steel industry on a hand-to-mouth basis insofar as scrap is concerned and has prevented steel production from utilizing its full rated capacity.

We as a manufacturing organization feel that our scrap program is not only a patriotic duty but it is good business because it has proved to be a profitable operation.

SALVAGE ORGANIZATION

To keep the scrap moving out of the Carrier plant, we have appointed a salvage manager who has the responsibility and the authority for cleaning out the plant of obsolete machinery, equipment and productive inventory for which no immediate use can be seen. The salvage manager is familiar with mechanical equipment in the plant and the plant buildings as a whole. He has two assistants, one responsible for the write-off and cleaning out of obsolete productive material and the other for scrapping obsolete dies, jigs, fixtures and machinery.

A committee, on which there is a representative of every manufacturing division as well as the development division and the office building, works in conjunction with the salvage staff.

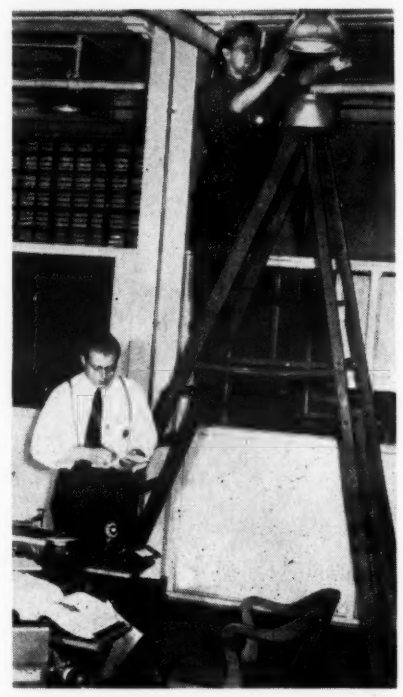
The salvage committee meets every Saturday morning in the obsolete machinery store room, to tag for scrapping the equipment which has been designated as having no immediate use. During the following week this equipment is recorded and shipped out as scrap.

When the management decides that any units of production inventory have become obsolete, this material is written off. Scrap tags are sent to the Comptroller for approval and when this is granted, the equipment is pulled out and sent to the salvage department.

Segregation of materials to be salvaged from production is essential, in order to carry on a profitable salvaging operation. Brass chips when contaminated with oil lose some of their value per pound. When they are contaminated both with oil and with ferrous metals, their value decreases even more. We found it advisable therefore to stencil containers in each department, to show the type of material for which they are exclusively intended.

Segregation, however, should begin when an order for material is placed. The Purchase Order should show the manner in which the material should be painted, for identification purposes. Then the tote pans for scrap moving, etc. in the plant, are painted similar to the markings on the material.

Thus the man who cleans the machine knows at a glance into which container he is to put machine chips.



(Above) Carrier Corp. employes collected 196 pounds of luxury rubber (phone bases, ash tray adornments, automobile mats, etc.) in less than an hour. (Below) Substitution of glass for 308 aluminum light shades sent 154 pounds into the "scrap."

Steel Recovery Corp. Ready To Operate

WASHINGTON, D. C.—Organization of the Steel Recovery Corp. was announced recently by the War Production Board.

The corporation, acting as agent of the Metals Reserve Co., will make arrangements for the purchase and sale to war contractors of idle, frozen, and excess stocks of iron and steel, as part of the WPB's nation-wide program to direct all scarce materials into strategic production as rapidly as possible.

It will function in much the same manner as the Copper Recovery Corp., which is now in the process of channeling copper into war use.

George L. Stewart, vice president of Edgar T. Ward's Sons & Co., steel distributors of Pittsburgh, Pa., was elected president of the Steel Recovery Corp. at the first meeting of the board of directors.

Headquarters of the Steel Recovery Corp. will be in Pittsburgh.

WPB has already redirected large quantities of iron and steel from idle inventories to war use. The extensive program now being initiated has been in the progress of development for a number of weeks, and will greatly expand this activity.

It is expected that by the end of this month the first of 250,000 inventory report forms will be mailed to known holders of iron and steel. These will go to 37,000 owners of stainless steel. Similar programs on other types of steel will follow.

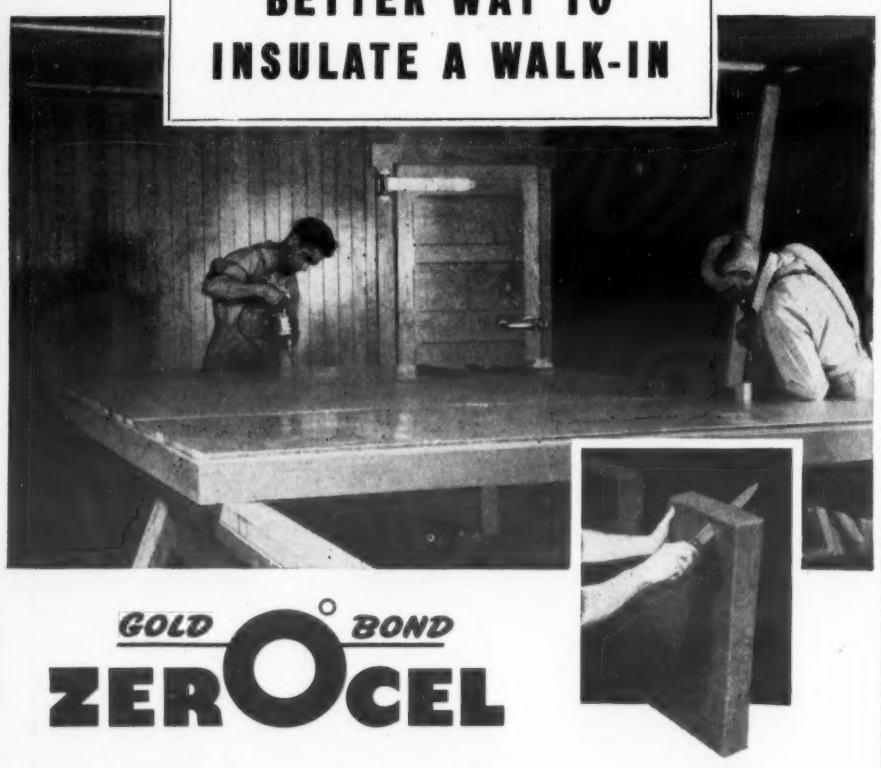
Accompanying the forms will be a letter explaining the program and a list of prices at which the government will purchase material which cannot be used in its existing form and must be remelted before taking its place in the war effort.

In cases of material usable "as is" by qualified war contractors, owners, and potential buyers will be notified so that sales may be arranged.

Every attempt will be made to find uses for idle material in its existing form, but where this cannot be accomplished it will be purchased by the Steel Recovery Corp. for use as scrap.

The Steel Recovery Corp. and WPB's Inventory and Requisitioning Branch and Iron and Steel Branch will work together in the program.

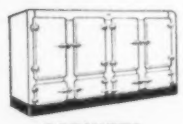
HERE'S A BETTER WAY TO INSULATE A WALK-IN



GOLD BOND ZEROCEL

REFRIGERATION insulation engineers everywhere are using Gold Bond Zerocel to insulate prefabricated walk-in coolers, faster and at lower cost. 2 inches of this efficient low temperature insulation does the work of 2½ inches of many block or board materials—*yet it weighs only half as much and costs about one-third!*

You simplify construction with lightweight, self-supporting Zerocel, too. Doors, for example, can be lighter, need fewer hinges. Zerocel cuts readily with an ordinary knife. It isn't brashy, handles better, and its toughness and rigidity make installation between studs and joists easy. Zerocel won't settle or deteriorate, either. It's fireproof, water-repellent, non-capillary, immune to fungi, bacteria and vermin—and can't absorb moisture or odors. No wonder more and more engineers are specifying this efficient, low-cost insulation for all types of cold storage and refrigeration units!


CABINETS

STORAGE

TRUCKS

LOCKERS

FOR A QUICK ANSWER TO YOUR PROBLEM, write to our Industrial Sales Division. One of our staff of insulation engineers will be glad to suggest details and specifications that will help you find the right solution to your problem.

NATIONAL GYPSUM COMPANY, BUFFALO, N. Y.

NOW values must be more than Dependable!

● We Americans all realize that armament work must come first. Our Government has first claim to the use of our machines, our skill and our manpower.

Since refrigeration accessories are becoming so scarce, you must be sure that those you do obtain will function accurately for a long time.

ALL MUELLER BRASS CO. REFRIGERATION PRODUCTS ARE TIME-TESTED AND DEPENDABLE, and their quality now means more than it ever did before.

To the extent we are permitted and to the capacity we have available, we shall continue to the utmost of our ability to produce standard essentials for the Refrigeration Trade.

Mueller Brass Co. products have a "built-in" reputation for quality.

MUELLER BRASS CO.
PORT HURON, MICH.

LETTERS

'CAN'T MAKE SERVICEMEN LIKE YOU CAN WELDERS'

1504 LaRue
Jacksonville, Florida

Dear Sir:

After reading this letter to Mr. McNutt will you please forward.

J. B. Venters.

Mr. Paul McNutt
Chief of War Man Power Commission
Washington, D. C.

Dear Sir:

In reading Air Conditioning & Refrigeration News this week the editor has stated that you have made a very grievous error of omission in that you have omitted REFRIGERATION SERVICE AND MAINTENANCE from the essential activities necessary to war production.

I agree with the editor and so would you had you been laying on your back in Riverside Hospital for the past week like I have been, caused from over work, sixteen to eighteen hours a day, seven days a week for the past seven months trying as best we can to keep the refrigeration equipment in Hospitals, Board of Health, Places where food is stored and sold and if any time is left in homes.

In July of 1941 there were in this city 105 men in the business of repairing, maintaining electric refrigeration equipment. Today there are 18 left to carry on and yet you say that refrigeration is not essential to the war production. I say that it is.

People must eat before they can work and food must be kept by refrigeration. Babies are no longer nursed from the breast as the were years ago and their milk must be refrigerated from the time it leaves the cow to the baby. Take that away from the mothers of this country and see how much loyalty you have left to buy bonds.

I contend that the few remaining men, left in this field are essential. While I am 43 years old and served in the past war, I know that the physical condition at my age would not allow me to follow the younger men in service but this service must go on here and as long as I can go I shall do my best to serve my fellowmen here in Jacksonville.

Think it over before it's too late.

J. B. Venters.

Fifteen years in this profession:

You can't make service men in two years like you make welders in six months.

ONE SERVICEMAN'S TIRES, OR 30 ICE TRUCKS?

Manufacturers and Distributors Service
1523 South 39th Street
St. Louis, Mo.

TO WHOM IT MAY CONCERN

Will this AD be RUN in 1943?

"Needed 30 trucks with 120 or more tires and 30 strong men to deliver ice to 3,000 customers who formerly used Electric Refrigerators, now useless from need of repairs."

WHY?

One service man with one light automobile, four tires and a few parts could have kept them going. Being non-essential, he is gone, or maybe it is his tires or maybe no priority on domestic refrigerator parts, caused it.

Whatever it was, these good citizens with over $300,000 already invested will have to buy ice boxes (if they can get them) for $150,000 and pay $4.50 per month for ice, against $1.50 for electricity, or a total of $108,000 per year. This $108,000 and the $150,000, less $15,000 or $20,000 they would have paid for repairs, could have gone for bonds. (Above figures are approximate, of course.)

A lot can be said about public health, safety, welfare, and food spoilage, if no refrigeration of any kind is used, but today, August 8, 1942, many, many homes in St. Louis are using tubs, washing machines, old boxes or what not, to put ice in, so they can keep the baby's milk sweet, while they wait for parts, or their turn for service from one of our over-worked, and under-manned local service companies.

"YOURS FOR VICTORY."

Gid Porter, General Manager.

A NOTCH HIGHER RATING TO SAVE BUSHELS & BUSHELS

De Laval Sales and Service, Inc.
Poughkeepsie, N. Y.

Editor:

We work under the authorized certificate plan of the WPB but now find ourselves unable to secure needed material such as parts and other things that go into servicing refrigeration equipment. The ratings on Order P-126 really do not get us anywhere except in the case of an actual breakdown and then we can use A-1-a.

You can readily see that if a big refrigeration plant breaks down, it should be repaired and put back in service within a few hours. We will soon be responsible for servicing about fifty big cold storage plants which house something like a million and a half bushels of apples to say nothing of the other kinds of fruit.

We are very apprehensive as to what is going to happen if Order P-126 doesn't provide a better rating for the refrigeration industry as a whole. Have you any encouragement or information as to a change in Order P-126?

F. E. Cunningham.

'KEEP TRYING' TO OBTAIN TIRES, IS HIS FORMULA

1523 Sixth Ave.
Bradenton, Florida

Editor:

Re: Article concerning tires and gasoline in August 17 issue of Air Conditioning & Refrigeration News.

When tire rationing first went into effect, I applied for two new tires and was turned down by the local board. However, the chief of the rationing board suggested that I write to the board in charge of the entire state and state my case. I did and received two new tires.

Gasoline came next and because the locality is "small town" (where every one knows every one) I registered my Tudor sedan as a "Sedan delivery" and received an "X" card. Of course neither of the rear seat cushions had been in the car for months. Anyone who cared to take the trouble, could learn that the car was seldom used for anything else but strictly service work. And if they think there is any pleasure in riding in it, I can cure them pronto. Naturally the car is used for service work exclusively since rationing took effect.

Next I needed to get two more tires and upon application was told to have the old ones recapped, which I did. No letter to state headquarters was necessary this time.

The second gasoline rationing proceeded in the usual manner. I received an "A" book and applied for additional gasoline. In due time I received a "C" book. As soon as the weeks catch up with my "A" book I will use one "A" coupon per week and any extra I need will come out of my "C" book. When it is gone, I will see if I can get another.

First try your local board. If you fail, write to the State headquarters. State your work—any contracts you hold to do—Army, Navy or defense work. Why your job is necessary to your community, etc. If that fails, Washington is the next place on the list.

My experience may be unique. As stated, I am well known throughout the county. I am the only qualified service man in the county and I'll admit I had a time keeping them going this summer. Twenty calls per day was no unusual.

Hope this little statement of my experiences will help someone.

A. R. Pool.

SLOW DEATH FOR ALL HOUSEHOLD REFRIGERATORS

COPY
The Canton Hardware Co.
Canton, Ohio

War Production Board
Washington, D. C.

Attention: Domestic Refrigeration Repairs

Gentlemen:

Most of our former sources of supply for repairs for household refrigerators are now refusing orders for such items as thermostat repairs, expansion valve repairs, etc. without a priority of A-1-k. Of course, it is impossible for a household refrigerator owner to obtain such a priority.

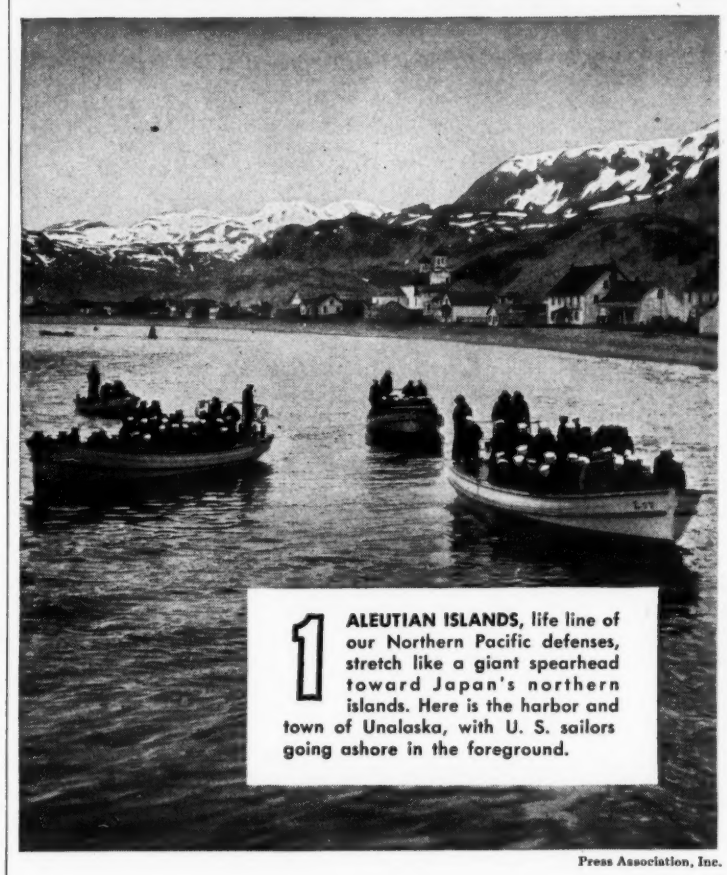
That means that by degrees the household refrigerators of the country are going to be put out of operation and refrigeration for civilians is going to become a serious problem, which will at the least be a great inconvenience and more probably be a menace to civilian health.

If this policy contributed toward winning the war, I don't believe that many civilians would complain but when you consider that the repairs of the items in question, i.e. expansion valves and thermostats, would take little if any critical materials because the defective parts would be turned in when a replacement part was obtained, the policy does not seem to make sense.

We request that the War Production Board, Household Refrigeration Division, carefully study the present situation and make immediate plans to provide maintenance repairs for household refrigerators.

J. W. Brothers,
Executive Officer.

FAMOUS LIFE LINES



1 ALEUTIAN ISLANDS, life line of our Northern Pacific defenses, stretch like a giant spearhead toward Japan's northern islands. Here is the harbor and town of Unalaska, with U. S. sailors going ashore in the foreground.

Press Association, Inc.

2 THIS HUSKY CRAWLER TRACTOR, here used by the Field Artillery to smash down underbrush for a gun emplacement, has its life lines . . . hydraulic tubes, fuel and lubrication lines, and many other tubular parts . . . of Bundy Tubing.

Photo by U.S. Army Signal Corps

NEW TUBES, new sizes, new types, are demanded daily as war production grows. And Bundy, with its greatly increased and still increasing production facilities, has been able to meet these demands.

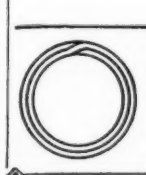
A wide range of larger sizes of Bundy Electricweld is now being produced . . . for structural and mechanical uses in aircraft, gliders and tanks. New, heavier walled Bundyweld for use in ammunition and projectiles . . . new Composite (two strip) to increase the range of Bundyweld sizes . . . these are just a few of the recent developments.

And, of course, on every front with the armed forces of the United Nations, there you find Bundy Tubing in hundreds of different applications, in planes, engines and propellers; radios and parachute ground and parachute flares; tanks, motorized vehicles and trailers; searchlights and hospital lamps . . . in all these and dozens of other types of military equipment, Bundy's complete range of sizes, its strength, ductility and resistance to vibration fatigue have won it acceptance as standard.

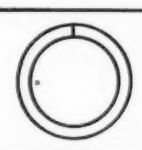
If tubing plays a part in your war products, you will want the complete Bundy story and the co-operation of the Bundy research laboratory. Write Bundy Tubing Company, Detroit, Michigan.

BUNDY TUBING

ENGINEERED TO YOUR EXPECTATIONS



BUNDYWELD double-walled steel tubing, hydrogen-brazed, copper-coated inside and outside. From Capillary sizes up to and including 1/4" O. D. This double-walled type is also available in steel, tin-coated on the outside, and in Monel.



BUNDY ELECTRICWELD steel tubing. Single-walled — butt welded — annealed. Also furnished tin-coated outside if desired. Available in sizes up to and including 5/8" O. D.

BUNDY "TRIPLE-PURPOSE" MONEL tubing. Double-walled, rolled from two strips, joints opposite, welded into a solid wall. Available in all Monel, Monel inside —steel outside, and Monel outside — steel inside. Sizes up to and including 5/8" O. D.

Nash-Kelvinator Profit Down; War Output Up

DETROIT—Nash-Kelvinator Corp. and subsidiaries report for the nine months ended June 30, 1942, a net profit of $2,368,562 after charges and Federal taxes, equal to 55 cents a share of capital stock.

This compares with a net profit of $3,734,246 or 87 cents a share in the nine months ended June 30, 1941.

For the quarter ended June 30, 1942, net profit was $811,047 or 19 cents a share, comparing with net profit of $2,606,589 or 61 cents a share in June quarter of 1941.

Conversion of all plants to full war time effort has been progressing rapidly and the corporation is up to schedule on all projects now in production, the management reports. An accelerated rate of output from this date forward is assured and maximum rate will be reached early in 1943, at which time production is expected to be more than three times the greatest peacetime scale.

DU PONT
Artic
REG. U.S. PAT. OFF.
For information about nearest source of supply, write to
ELECTROCHEMICALS DEPARTMENT
E. I. DU PONT DE NEMOURS & CO. (INC.)
Wilmington, Delaware
or National Ammonia Division
Frankford P. O. Philadelphia, Pa.

TO ASSURE QUICKER DELIVERIES RETURN EMPTY CYLINDERS PROMPTLY!

There is a shortage of cylinders for refrigerants. If you will return your "Artic" Methyl Chloride containers as soon as empty, your deposits will be repaid immediately—and you will prevent delays in shipments of "Artic" to your shop! Round up any empties you have now and ship them back!

What to Check When Electric Motor Does Not Start

Motor Troubles & Their Correction

Editor's Note: **Following is part of a section on servicing motors, in a series of articles on motor construction and operation.**

By R. A. Fuller,
Industrial Engineering Dept.,
General Electric Co.

Complaint - -

J. Radio Interference

1. Sparking at the Brushes

"Sparking at the brushes" is the principal cause of radio interference from motors. This type of trouble is, therefore, chiefly caused by direct current motors and single phase motors that are equipped with commutators. Reduction in the sparking can usually be made by following the recommendations given in Section C on "Excessive Brush and Commutator Wear and Sparking." This action, quite possibly, will not give sufficient reduction in the radio interference or excessive maintenance may be required to keep the commutator and brushes in satisfactory condition for good radio reception. Other corrective measures may, therefore, be desirable.

If the power for the radio receiving set is from the same circuit as that for the motor it may be possible to plug the radio in on another circuit or to connect the motor to another supply line. The more wire there is between the radio and the motor the better are the chances for avoidance of radio interference. This is especially true if the wiring is enclosed in a metal sheath as in the case of BX or solid conduit.

Where there is such a metal sheath it is usually supposed to be grounded by connecting it to a water pipe or other similar good ground. Substantial clamps that insure good electrical connection should be used for connecting the ground wire to the BX and to the pipe. Well grounded metal sheathing on the wiring is one of the more effective methods of preventing radio interference.

The motor frame should also be well grounded by a wire from under one of the motor mounting bolts to a water pipe, by good electrical contact between the conduit and the motor through the motor conduit box and fittings, or by similar means.

If the wiring to the motor is not BX, or in conduit, the radio interference may be eliminated by replacing it with BX or running it through metal conduit. Starting at the motor conduit box, 10 to 20 feet of well grounded BX may be sufficient.

Many direct current fractional horsepower motors have radio interference prevention capacitors built into them. It is possible that, infrequently, a failure of these capacitors might cause radio interference. This trouble is, of course, corrected by replacing the faulty parts.

Another, and perhaps the most effective, method of eliminating radio interference is the use of capacitors. A 0.001 or 0.002 microfarad capacitor connected between each of the two wires and ground, at the motor terminal box, usually gives satisfactory results. The motor frame should also be well grounded. Capacitors conveniently arranged for this service are obtainable. If these are not readily available, suitable capacitors can be obtained from most radio and electrical stores.

2. Loose Connections

"Loose connections" may occasionally cause radio interference by slight sparking at points of poor contact or by momentarily making and breaking the circuit. Momentary making and breaking of the circuit will be more liable to occur at points that are subject to vibration. Radio interference from such causes is uncommon as the trouble tends to evidence itself in some other way as for example a poor contact causing failure of the unit to start.

3. Failure to Come Up to Speed Promptly

(This applies only to brush raising single phase motors.)

"Failure to come up to speed promptly," on a brush raising single phase motor, may cause objectionable radio interference. In the normal starting of such motors, the brushes air raised quickly. If sparking of the brushes does cause radio interference, it lasts only for a couple of seconds and is, therefore, usually not seriously objectionable.

However, if the motor is slow in coming up to speed and in raising the brushes, the duration of the radio interference may be sufficient to cause complaint. The slow starting may be caused by excessive load, low voltage or improper setting of the brushes. Excessive load and low voltage are covered by Section A on "Overload Trips Out or Motor Overheats." Improper setting of the brushes can cause low torque during starting and thus make the motor slow in coming up to speed. A slight change in the brush setting may be sufficient to give the desirable promptness in starting. The comments on radio interference caused by sparking at the brushes may be helpful.

((See also Section B 13.)

K. Belts Wear Out Quickly

"Belts wear out quickly" is a complaint most commonly caused by the belts slipping on the motor pulley. This is probably most often due to loose belts. Part of the regular maintenance program should be to feel the belts for correct tension and to listen for the belt squeaks in starting that indicate slipping.

(See Section F 3.)

1. Poor Alignment Between Motor and Load Pulleys

"Poor alignment between motor and load pulleys" may cause rapid belt wear due to the rubbing of the sides of the V-belts on the pulley grooves where the belts enter and leave the pulleys. Poor alignment may be caused by the motor and load shafts not being parallel.

If the motor is a resilient mounted design the shafts should be parallel under operating conditions. Due to the resilience the belt tension may cause some cocking of the motor so that, with the belts removed and with proper alignment, the motor and load shafts are not parallel. With solid base motors the grooves in the motor pulley should be exactly in line with the grooves on the load pulley with the belts removed.

Water coolers, household refrigerators, and similar units are so compactly designed that it is often difficult to check the pulley alignment by eye. Where considerable numbers of such units are serviced an alignment gauge, as covered under "Pulley Alignment" in Chapter IV, is very helpful. The pulley alignment on larger units can be checked by sighting along the belts or, if the side of the compressor flywheel is a machined surface, by holding a straight edge against this surface and noting the distances of the grooves from the straight edge. With proper alignment a groove in the compressor flywheel and the corresponding groove in the motor pulley will be the same distance from the straight edge.

2. High Starting Torque Motor Used Where Not Required

"High starting torque motor used where not required" may be the cause of belt slipping when the motor starts. An example of such a condition might be the use of a high starting torque compressor motor for driving a centrifugal fan. It may be possible to correct this slipping without changing to a lower starting torque motor. The elimination of the slipping will result in a more severe jolt to the load, when starting, as the cushioning effect of the belt slipping will have been removed. Although usually the load is of sturdy enough construction to stand this more severe starting, an infrequent case my develop trouble.

The most simple corrective action is to tighten the belt. The use of a larger motor pulley may be permissible and the greater contact of the belt with this larger pulley tends to eliminate slipping.

A temporary measure is to rub a small amount of soap on the wearing surfaces of the belt to lubricate them. Reactance coils—made by winding several turns of suitable heavy wire on laminated iron cores—may cause sufficient drop in voltage, when starting an alternating current motor, to give satisfactory operation without seriously interfering with the operation after the motor gets up speed.

Similar results may be obtained on direct current motors by using a suitable heavy current resistor in one of the wires supplying power to the motor. The wire for the reactance coils should be at least as large as that used in supplying power to the motor. The resistor must be of heavy enough construction to prevent its burning out under the most severe conditions, of repeated starting and continuous running, that will be experienced on that particular installation.

When a brush raising single phase motor is involved a change in the setting of the brushes can be made to reduce the starting torque. When such a change is made, the starting should be observed carefully to insure against questionable operation with particular attention to the breaking away from standstill and the point at which the brushes are raised.

3. Unmatched Belts

"Unmatched belts," on units equipped with more than one belt, may result in rapid belt wear if some of the belts are appreciably tighter than the others. It is good practice to replace all of the belts on a unit at the same time. In some cases it may be found that variation in the lengths of new belts are sufficient to cause considerable differences in tension between belts in a drive. In such a case it may be desirable to select the new belts so that they are more uniform in length.

4. Motor Pulley Too Small

"Motor pulley too small" may cause belt slipping and wear. The V-belt, in passing around the small motor pulley, bulges out on the surfaces that touch the pulley to such an extent that there is poor contact between the two. The sharp bending of the belt around the pulley represents more severe duty on the belt than is desirable. The length of belt in contact with the pulley is reduced below permissible minimum.

Tightening of the belt may eliminate the slipping without being too seriously harmful. The use of a larger motor pulley may be possible. A thinner V-belt or a cog type of belt may be available for use on pulleys of this small diameter.

If the use of a larger motor pulley tends to place excessive running load on the motor, it may be possible to adjust the capacity by such measures as adjusting the expansion valve to starve the evaporator, throttling the suction line slightly with the suction service valve, modifying the back pressure control setting slightly, and changing the back pressure control connection so that it functions on pressure in the suction line on the evaporator side of the suction valve.

5. Oil Gets on Belts

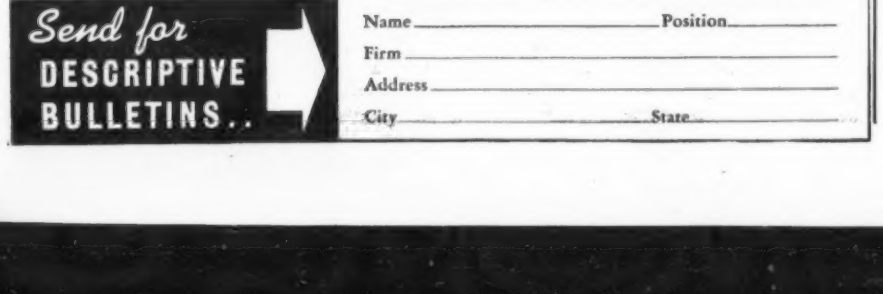
"Oil gets on belts" is a possible reason for rapid belt wear. As V-belts are made of rubber, oil tends to rot them. A compressor seal leak, oil seepage of the motor bearing or spilling of oil when the motor is lubricated may be the cause. The corrective action to be taken is fairly obvious once the cause is located. The seal leak tends to indicate need for a replacement seal, the motor bearing seepage may indicate overoiling and the spilling of oil calls for more care in oiling the motor.

WAGNER MOTORS
give MAXIMUM *efficiency*
ON REFRIGERATING AND AIR CONDITIONING EQUIPMENT
THAT GOES INTO *War Service!*

Because Wagner motors have proved their reliability and efficiency in prewar days on all kinds of motor driven equipment, thousands of them have already gone into war service. Today you will find Wagner motors driving all types of refrigerating and air conditioning equipment in war industries, army cantonments, navy yards, air fields, and on ships—delivering the same dependable service that has established Wagner's outstanding reputation for high-quality motors.

Wagner's plant is working day and night, turning out more motors now than ever before, and are supplying these dependable motors wherever they are needed to help in our "all-out" war effort.

If the equipment you manufacture or install is motor driven and essential to war production or to the armed forces—consult Wagner. Twenty-five branch offices located in principal cities and manned by trained field engineers are at your service.



1. Type RP, Squirrel-Cage Polyphase Motor. Of simple construction, easily installed, and exceptionally sturdy and dependable. 1/6 to 400-hp.
2. Type M, Shaded-Pole Fan Motor. For fans and blower drives where the fan or blower drives are mounted directly on the motor shaft. 1/125, 1/80, 1/40 and 1/30-hp.
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Remember—
SERVICE FOR THE DURATION IS OF PARAMOUNT IMPORTANCE

In times like these, when many manufacturers of electrically driven equipment have converted their plants to the manufacture of victory materials, it is good to know that the motors driving their equipment in the field will not want for service. Wagner's 25 sales and service branches are on the job in all parts of the country to help you keep your products in continuous service, no matter where they are.

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Gentlemen: ACARN M42-22
Please mail me FREE Bulletins MU-182 and MU-183.
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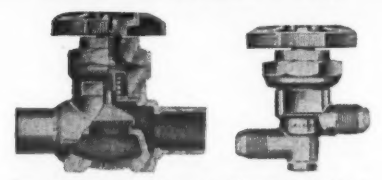
Increased refrigerated space for the accelerated production of perishable foods places a heavy responsibility upon the refrigeration industry. Shortage of metals condemns waste and inefficiency. Do your part to conserve materials. Design to produce more refrigeration per watt hour. Select equipment which requires a minimum of service. Specify SUPERIOR — the quality buy-word of the industry.

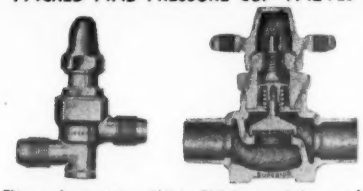
CUT OUT AND SAVE

DIAPHRAGM PACKLESS VALVES



Entire internal assembly removable for soldering or inspection. Equipped with famous pressure cup below diaphragm. Two and three way. Flare sizes ¼" to ¾"; Sweat sizes ¼" to ⅜".

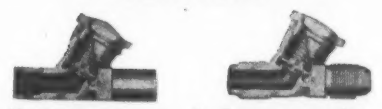
PACKED AND PRESSURE CUP VALVES



Flare and sweat sizes ¼" to ⅜" (two and three way) have hex seal cap. Sweat sizes ¼" to 2⅛" (globe) have wing nut seal cap. Internal assembly (all sizes) removable for sweating to valve body.

★ *Refrigeration is Vitally Essential to Our National Defense Efforts* ★

CHECK VALVES



Very sensitive springs. Less than 5 ounces pressure drop. Positively will not chatter or hum. All internal parts easily removable for sweating or inspection. Sizes ¼" to ¾" Flare; ¼" to ⅜" Sweat.

LIQUID INDICATORS

With or without seal cap. Flare sizes ¼" to ⅜"; Sweat sizes ¼" to 1⅜". On ½" Sweat to 1⅜" entire upper assembly may be removed as a unit to facilitate soldering of refrigerant lines to connections.

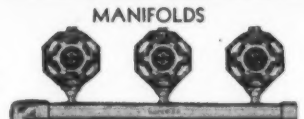
★ *Refrigeration-Food Preservation and National Defense are Synonomous* ★

FOR FUTURE REFERENCE

DEHYDRATORS

Silica-Gel or Activated Alumina. Refillable and non-refillable. ¼" to ⅜"; ¼ to 5 H.P.; 2 to 60 cubic inches.

MANIFOLDS



With packless or seal cap valves. Two to six valves; ¼" to 2⅛" valves, with or without end fittings. Sweat or flare.

FILTERS

Highly efficient sock type filter. Sizes ¼" SAE to ⅜" SAE. One to five horsepower.

★ *Don't take chances with the Nation's Health--do the best job possible* ★

FITTINGS

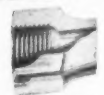
Unions, adapters, elbows, tees, crosses, caps, etc. ⅛" through 1".

HEAT EXCHANGERS

Unique design gives highest capacity per unit size. Sweat or flare connections. 4200 to 9725 BTU per hour.

Combination Heat Exchanger and Accumulator. From one to ten tons. Especially recommended for low temperature installations.

FLARE NUTS



Brass and steel. Long and frost proof. Forged and bar stock.

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SUPERIOR VALVE & FITTINGS CO.
★ PITTSBURGH ★ PENNSYLVANIA ★

New Uses of Refrigeration That Help To Speed U.S. War Effort

Editor's Note: In another part of this issue (starting on page 8) is an article describing in some detail four principal "Wartime" special uses of refrigeration.

Starting on this page and continuing on the next two pages are brief descriptions of some of the many other ways in which refrigeration is contributing to the War effort on the industrial front—new uses developed to speed the production and improve the quality of War materiel.

REFRIGERATED STORAGE OF FLYING SUITS

A prime need at any of the airfields or bases maintained by the U. S. armed services is refrigerated storage facilities for the wool and fur flying suits worn by the flying personnel during their flights into the sub-zero sub-stratosphere levels.

Not only for protection from moths, but also from the extreme conditions of temperature and humidity, is it necessary for these all-important and expensive suits to be carefully stored. Chemical treatment has been found unsatisfactory, and would be difficult of application because of the frequent use of the suits.

The "shock" system of refrigeration, widely used in civilian fur storage applications, has found favor as a method of moth control at U. S. flying bases.

Reason for the "shock" system is that in the larva stage, the only part of its lifespan in which the moth causes damages, it is most susceptible to atmospheric conditions. At temperatures under 40° F. the larva becomes dormant, but can do damage if higher temperatures are restored. At temperatures below 20° F. it is killed.

In the "shock" cycle the storage room temperature is reduced to 15° F. to kill any larva which may be feeding. This temperature is maintained for several days, and then the refrigeration is cut off and some form of heat is introduced to raise the temperature quickly to 50° F. where it is held for a few hours only. Purpose of this is to hatch out any eggs.

Then the temperature is suddenly dropped to 15° F. again for a day to kill off the surviving larva and any newly hatched larva.

After one day at 15° F. the temperature is brought back to the 35° or 40° F. storage condition. This entire procedure is repeated at regular intervals, or when any quantity of untreated clothing is placed in the storage room.

During the normal storage period the temperature range is from 35 to 40° F., with relative humidity at about 50 to 65%. Relative humidity must be high enough to prevent drying and cracking of the fur skin, but low enough to prevent mildew.

REFRIGERATION IN SHELL PRODUCTION

In the production of such projectiles as 155 mm. and 75 mm. shells, one of the final operations is the "shock test" this consisting of alternately chilling and heating the projectiles to certain specified temperatures.

With continuous production on a definite hourly volume, the process must be timed to be in accord with the rest of the production schedule.

In one installation of this type it was decided to immerse the projectiles in alternate baths of chilled and heated water. Research showed that the cooling and heating time consumed was much shorter when moving water was used rather than water not put into motion.

A water chiller is used to supply chilled water to the vat. Temperature control in this particular job was secured by the use of remote bulb aquastats and motorized control valves. This method assures continuous and properly controlled operation without requiring any appreciable attention on the part of the workers.

The vats which contain the chilled and heated water in which the projectiles are immersed are oblong and rectangular in design. They are placed end to end in a direct line. An overhead mono-rail with a trolley electric hoist lifts the projectiles in trays from one vat to the next and finally onto trucks for moving to the next operation.

ASSEMBLING AND TESTING OF AIRCRAFT INSTRUMENTS

The assembly of precision aircraft instruments is a delicate and painstaking operation, in which constant humidity, temperature, and air cleanliness are of first importance.

Proper degree of humidity must be maintained because the slightest perspiration on the hands of those handling the instruments tends to cause tarnishing or rusting of the parts.

Machining of some parts is so precise that the slightest bit of oxidation caused by too much humidity or dust particles affects the accuracy of the instruments. With tolerances so close constant temperature is all-important as variations in temperature have a tendency to make the instruments vary from the test standards.

Furthermore, since the assembled instruments are tested in a chamber in which the temperature is maintained at —40° F., rapid condensation of excess atmospheric moisture collects on the surfaces of the instruments when they are removed from the test chamber. Frosting will occur which makes inspection difficult.

It also follows that unless excess moisture is removed from the inside of the casing of the instruments during assembly, such moisture will condense and freeze when subjected to the low test temperature, and damage will result.

In one plant assembling such instruments an air conditioning system for the assembly room was designed and installed to maintain 80° F. dry bulb with 35% relative humidity. This set of conditions, while not entirely eliminating condensation on the surfaces of the instrument, decreased it to a point that conquered the problem.

Equipment installed consisted of a silica gel dehydration system for humidity control, and direct expansion refrigeration units for temperature control. Such an arrangement provides dehumidification independent of cooling and at the same time automatic operation of only that part of the equipment required by varying load conditions.

Selection of equipment for this combination silica-gel-direct expansion system had to take account of the fact that the maintenance of the exacting inside condition must be assured for more than just one combination of outside dry bulb and wet bulb temperature conditions.

Both inside and outside loads vary over wide limits, and the equipment is seldom required to perform with a load ratio equal to one specific combination of design conditions.

In order to meet these variations in loads and to provide a system with the widest flexibility and overall economy, a maximum outside design wet bulb condition was selected at moderately lower dry bulb conditions, thus preventing cold damp inside conditions on days of high outside humidity and relatively lower temperature.

Independent control of humidity and temperature is obtained by having the room hygrostat control the silica gel dehydrator, and a two-stage thermostat control the refrigeration or cooling phase. Thus the direct expansion refrigeration system is used for sensible heat removal only.

COOLING FOR WEATHER FORECASTING INSTRUMENTS

The U. S. Army Signal Corps has found refrigeration equipment a necessary aid in its weather forecasting operations.

Equipment sent up by balloon to the cold reaches of the upper air must be checked and calibrated at temperature conditions approximating those under which the instruments are expected to operate.

Low temperature test cabinets, mounted on trucks for use in the field, provide the necessary test conditions.

Upon the instruments' descent, recorded conditions are reproduced within the cabinets, and by subjecting the instruments to these conditions, findings are double-checked and allowances for mechanical inaccuracies determined.

PAR
CHECK THE FEATURES AND YOU'LL AGREE
★ PAR ★
IS TOPS IN REFRIGERATION EQUIPMENT!
Catalog on request
LYNCH MANUFACTURING CORP., DEFIANCE, O.

TESTED
PERFORMANCE
FOR MAXIMUM
SERVICE . . . ECONOMY

ELECTRIMATIC TYPE WK Pressure Actuated Condensing Water Regulators are precision engineered. . . . Then thoroughly tested thereby insuring efficient, trouble free performance. . . . For operation with Freon, Methyl Chloride or Sulphur Dioxide.

Primarily designed to control the flow of cooling water to the condensing coils of refrigeration machines Type WK Valves are pilot operated, thus permitting great sensitivity and large changes in water flow for small changes in condensing pressure.

These Valves automatically open when the condensing pressure rises to a predetermined point, and thereafter gradually increases the flow of cooling water as the condensing pressure continues to rise. Thus, condensing pressure can be established at the point where economy of power and use of water balance. For true economy and efficient performance, specify WK.

Type WK

Electrimatic
WATER REGULATORS
Water Regulators ¾ to 2 inch sizes

Further details are available at your Jobber, or, write for a copy of our latest catalog.

THE ELECTRIMATIC CORPORATION
2100 INDIANA AVE., CHICAGO, ILL.

An Important Message to the Refrigeration Serviceman...

In the interest of conservation of vital materials, we urge you not to replace any expansion valve or control until you are certain that it is no longer in good operating condition. To help you determine whether a valve is actually defective or not, we have prepared a "Service Analyzer", copies of which may be had upon request. However, in the event that a Detroit expansion valve or control is found to be in need of repair, remember that we are doing everything possible to repair valves and controls quickly and economically—even old models manufactured many years ago—as long as parts are available.

Keeping refrigeration systems going is important, but so is conservation of vital materials. You will make a contribution to the war effort by conserving strategic materials in these two ways:

1 Make sure that a valve or control actually needs replacing before you remove it from the job.

2 Have valves and controls repaired whenever possible, *even if you have a priority which would entitle you to a new part.*

Write us for your copy of the complete "Service Analyzer".

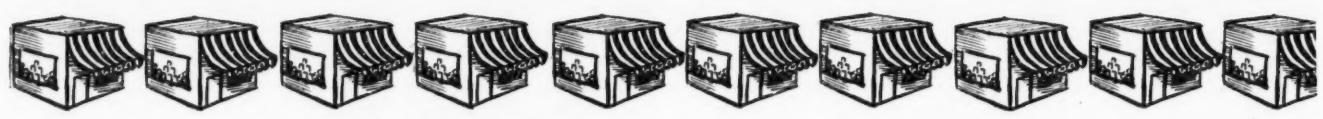
DETROIT LUBRICATOR COMPANY
General Offices: DETROIT, MICHIGAN
Canadian Representatives: Railway & Engineering Specialties Ltd., Montreal, Toronto, Winnipeg

Where Commercial Refrigeration Fixtures Were Installed - First 6 Months 1942

Civilian - 17,695 Units - 64% of Total Production

DISPLAY CASES (8,958 BUILT)

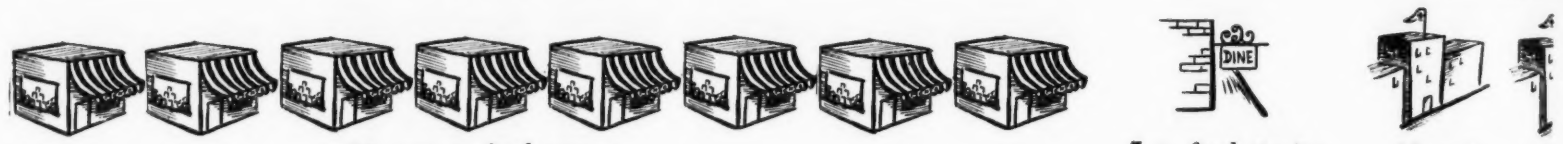
OF EVERY 100 DISPLAY CASES BUILT FOR CIVILIANS DURING THE FIRST 6 MONTHS OF 1942:



98 went to food stores — 2 to food services

REACH-IN CABINETS (6,883 BUILT)

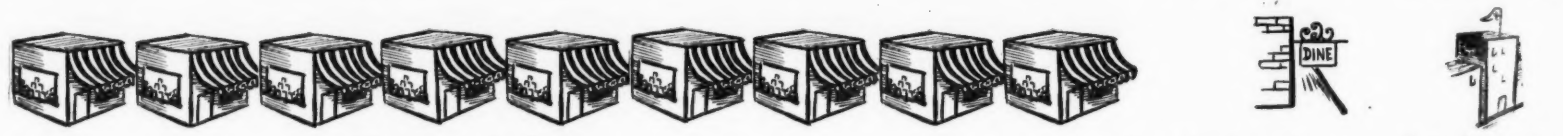
OF EVERY 100 REACH-IN CABINETS BUILT FOR CIVILIANS DURING THE FIRST 6 MONTHS OF 1942:



80 went to food stores — 7 to food services — 13 to hospitals

WALK-IN COOLERS (1,854 BUILT)

OF EVERY 100 WALK-IN COOLERS BUILT FOR CIVILIANS DURING THE FIRST 6 MONTHS OF 1942:



90 went to food stores — 5 to food services — 5 to hospitals

Government - 9,961 Units - 36% of Total Production

REACH-IN CABINETS

OF EVERY 100 REACH-IN CABINETS BUILT FOR THE GOVERNMENT DURING THE FIRST 6 MONTHS OF 1942:

85 went to the military services — 10 to ships — 5 to our allies

WALK-IN COOLERS

OF EVERY 100 WALK-IN COOLERS BUILT FOR THE GOVERNMENT DURING THE FIRST 6 MONTHS OF 1942:

85 went to the military services — 15 to ships

1930 1933 1936 1940 1942 1947 1952 1958

EXTRA YEARS OF SERVICE

The extra years of service built into Brunner Condensing Units is more important than ever. It means added refrigeration protection for preserving food and preventing food spoilage which is vitally needed for defense.

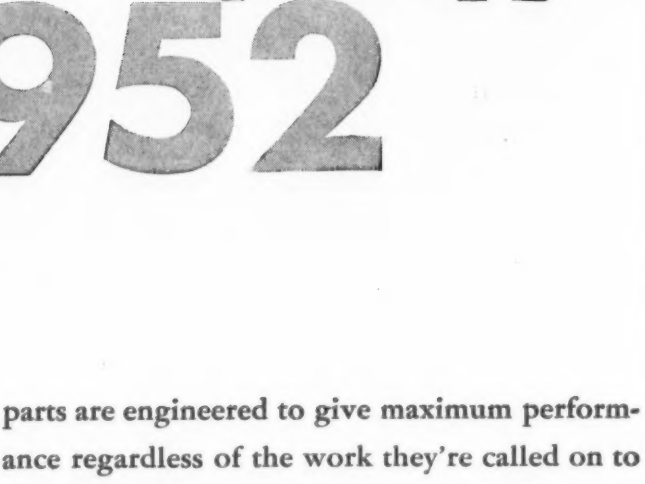
Brunner condensing units are precision built by the finest methods of manufacture to insure dependable service and long life. All working parts are engineered to give maximum performance regardless of the work they're called on to do. For a quality condensing unit with the ability to serve you well for many years, specify Brunner.

Brunner units are available from ¼ to 25 h. p. air and water-cooled models for every type of application. Write for fully illustrated catalogs. Brunner Manufacturing Co., Utica, N.Y., U. S. A.

BRUNNER

COMMERCIAL REFRIGERATION

BRUNNER MODEL A-100 ... 1 h. p. air-cooled condensing unit for average heavy-duty commercial applications. It will handle an 8' x 6' x 10' cooler in addition to a 16' display case. Also recommended for beer coolers and for pre-cooling barrels of beer.



Unusual Applications

AIR CONDITIONING OF SHELL LOADING PLANTS

The time gap between the production of powder and ultimate shell loading has been reduced several hours in ordnance plants by the installation of air conditioning dehydrators.

The dehydrating units are used on the shell production lines.

SHRINK FITTING OF RING GEARS

This process is simply the shrinkage of metal parts by the application of refrigeration to insure a close fit. The process is used by ordnance producers and aircraft manufacturers who must fit ring gears on big guns and on revolving gun turrets.

In fitting ring gears the gear blanks are chilled in a refrigerated cabinet down to about —20° F. At this temperature the blanks shrink sufficiently to allow the ring gears to be slipped easily over them. After the gear blanks have been removed from the cabinet, they warm up and expand to make a close fitting connection with the ring gear.

AIR CONDITIONING FOR GEAR CUTTING ROOMS

The process in which certain gears used in naval units are cut or "hobbed" requires relatively long periods of time, and because of the need for extremely close tolerances, the temperature of the gear must not change.

Relative humidity must also be controlled to prevent condensation on the gear and on the tools.

In one plant specializing in this work enclosed rooms were built around each of the cutting machines, with double-wall construction and insulation between the inner and outer wall sheets.

Each of the cutting rooms is conditioned by a separate system consisting of a cooling coil and a heating coil, and a compressor, and the necessary connections.

Design conditions are 75° F. dry bulb with relative humidity at about 60%. Dry bulb must be held within a 1° limit.

AIR CONDITIONING OF ARTILLERY FIRE CONTROL EQUIPMENT

To protect various types of fire control equipment used by U. S. Army artillery forces packaged air conditioning equipment is being used in arsenals.

Dust-free air, maintained at controlled temperatures and humidities, must be maintained at all times to prevent inconsistent and erratic performance. Directors, panoramic sights, range finders, observation telescopes, and similar military instruments must be protected.

For: TRUCKS, LOCKERS, COOLERS, COUNTERS, CABINET CONVERSIONS, use:

KOLD-HOLD PLATES

KOLD-HOLD MFG. CO.
LANSING, MICH., U.S.A.

3 CATALOGS IN 1
HERMETIC UNITS - COMPRESSORS - PARTS
FRIGIDAIRE - KELVINATOR - NORGE - G-E
Complete Line Refrigeration Parts - Tools - Supplies
WRITE FOR YOUR COPY ON YOUR LETTERHEAD
SERVICE PARTS CO.
MELROSE PARK, ILLINOIS

REFRIGERATION PRODUCTS
fedders
BUFFALO, N. Y.

Humi-Temp Forced Convection Units—Patented CROSS-FIN-COILS — Bare Tube Coils — Zinc Fused Steel Plate Coils—Disseminator Pans — Heat Exchangers—Evaporative Condensers — Instantaneous Water Coolers —

See Your Jobber or Write Direct
LARKIN COILS, INC.
519 MEMORIAL DR., S. E., ATLANTA, GA.

LARKIN
REFRIGERATION PRODUCTS

The Watchdog of the Nation's Food Supply

Where 34,311 Water Coolers Were Installed During First 6 Months 1942

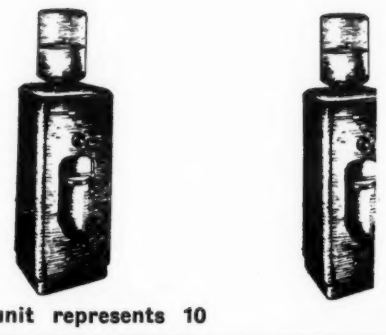
Government and Lend-Lease Agencies Buy 49% of Water Cooler Production and War Plants Take 34% While Civilian Applications Drop To 17% of Total as War Tightens Grip On Materials and Manufacturing Facilities

Of Every 100 Water Coolers Built During the First 6 Months of 1942:

49 Went to Government Agencies
(Mainly Self-Contained Type)

34 Went to Work in War Plants
(Mainly Central System Self-Contained Types)

17 Went to Civilian Applications
(Mainly Self-Contained and Ice Types)



Each unit represents 10

Total Sales - 6 Months 1942

Type	Dollar Volume	No. of Units	End Use (% of units) Govt.	War Plants	Civilian
Self-contained	$2,463,566	27,605	57	32	11
Central System	$ 179,373	168	22	76	2
Ice	$ 92,593	6,107	18	39	43
Other (Inc. Evaporative)	$ 86,746	431	0	81	19
Total	$2,822,278	34,311	49	34	17

The figures illustrated and given above represent the sales made during the first 6 months of 1942 by the following manufacturers: Airtemp Div., Chrysler Corp.; Carrier Corp.; Cordley & Hayes; Creamery Package Mfg. Co.; Copeland Refrigeration Corp.; Day & Night Mfg. Co.; Ebco Mfg. Co.; Filtrine Mfg. Co.; Frigidaire Div., General Motors Corp.; General Electric Co.; Grand Rapids Water Cooler Co.; Kelvinator Div., Nash-Kelvinator Corp.; Norge Div., Borg-Warner Corp.; Puro-Filter Co.; Sun Rock Co.; Halsey W. Taylor Co.; Temprite Products Corp.; Uniflow Mfg. Co.; Vilter Mfg. Co.; Henry Vogt Machinery Co.; York Ice Machinery Corp.

Dollar volume figures are given at factory prices.

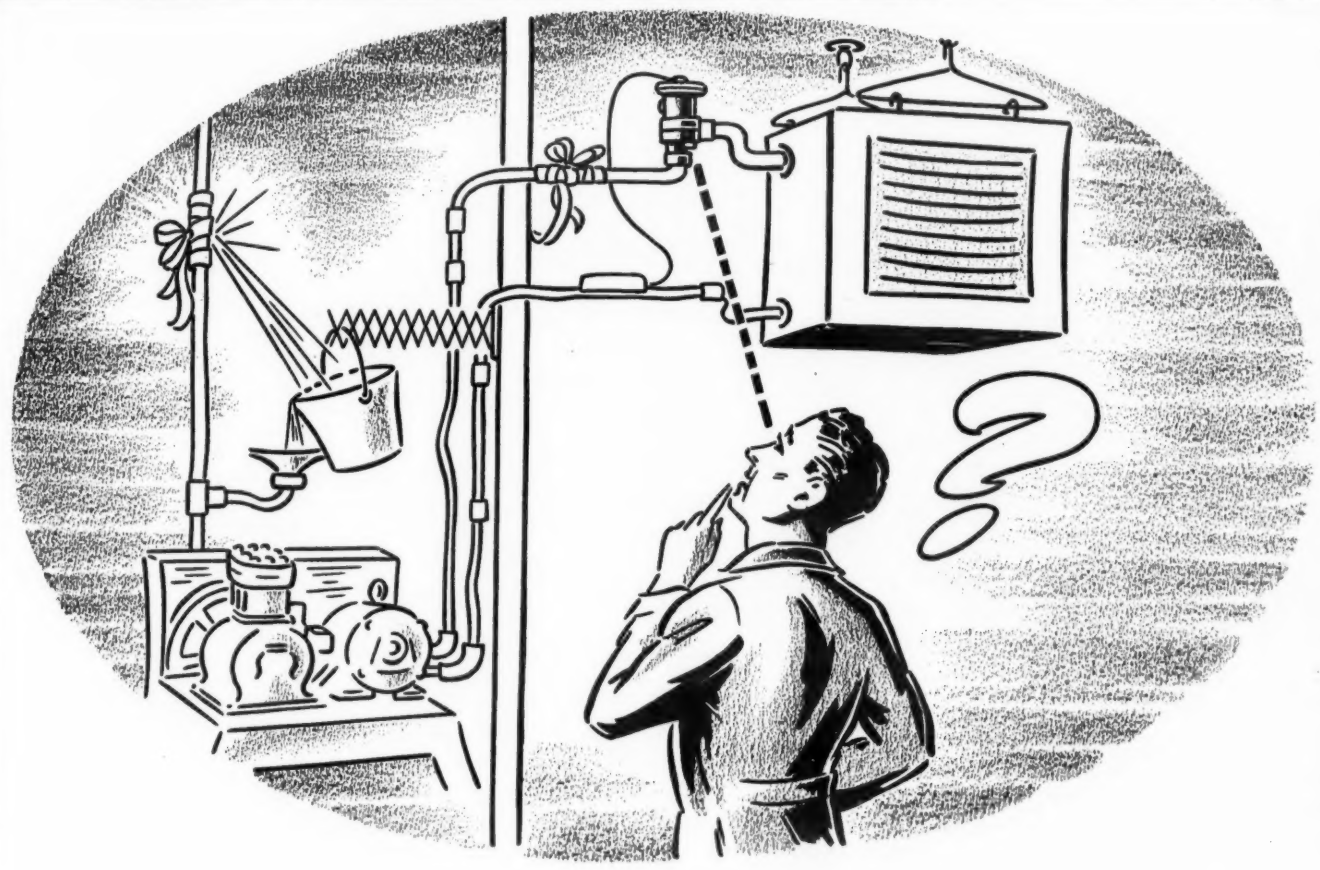
All of Tecumseh Products Company's war production has been turned out ahead of schedule, the quota exceeded, and all inspection and ballistic requirements met. That is why the Navy has honored "Chieftain" with the award of the "Navy E".

OUR RECORD OF WAR PRODUCTION

May 1st, 1941	5% War Effort
Sept. 1st, 1941	15% War Effort
Nov. 1st, 1941	30% War Effort
January 1st, 1942	45% War Effort
March 1st, 1942	70% War Effort
May 1st, 1942	75% War Effort
By August 1st, 1942	95% War Effort

TECUMSEH PRODUCTS CO. TECUMSEH, MICHIGAN

Chieftain



It's Our Industry's Job to

KEEP 'EM REFRIGERATIN'

Regardless of Restrictions, Shortages, Hardships

The maintenance, in working order, of our Nation's existing refrigeration equipment is tremendously vital today. On this depends America's health and food supply. Under present conditions of material shortages, service men and dealers are performing "near-miracles" in keeping equipment running. Regardless of handicaps, we've got to "Keep 'Em Refrigeratin' " for the duration of the War.

The products of the air conditioning and refrigeration industry are widely used by the armed forces and in the production of war materials. We are a metal working industry—but so is the making of war materials.

As a result, it is the obligation of all of us—manufacturers, dealers, jobbers, and service men—to continue to use every ounce of ingenuity and resourcefulness to keep equipment in service regardless of war-imposed limitations.

To the extent that we are permitted, Alco will continue to supply essential parts. To aid you in your service problems, our experienced engineering and laboratory staffs are always available for consultation and advice.

ALCO VALVE COMPANY
2620 Big Bend Boulevard • St. Louis, Missouri

ALCO *Engineered Refrigerant Controls*
THE STANDARD OF THE INDUSTRY

Are Supplies In the Field So Short As To Endanger Existing Installations of Refrigeration? - - the Jobbers Say 'Yes'

EDITOR'S NOTE: The National Refrigeration Supply Jobbers Association earlier this summer surveyed a cross section of its membership (including the largest, medium size, and smaller jobbers) in an effort to get a picture of the difficulties being encountered in the field in rendering proper service on existing mechanical refrigeration installations.

The survey was such that the answers cannot be tabulated, but through the courtesy of the association we present a digest of the replies—which tell graphically how critical the situation on repair parts and repair manpower was even early in the summer. It can safely be assumed it is much worse today.

The members of the Jobbers' Association were asked a series of questions, which are published along with the general consensus, and some of the individual answers.

I. Six Items Most Needed For Repairs Unavailable Without Priority.

1. Expansion valves. 2. Seals. 3. Driers. 4. Controls. 5. Tools. 6. Compressor parts.

* * *

II. Assuming that You Are Selling These Items on an A-10 or Better, Are You Able to Replace Those Which You Sell?

33⅓% said no. Following are some typical replies:

"Although we sell almost everything in our line on an A-10 or better, we are unable to replace most items sold."

"We are able to replace very few of the items of which we sell on an A-10 priority, due to the manufacturer requiring a higher priority than this."

"We are not able to secure replacement or original purchase for filling of War Department orders on ratings as high as A-1-e."

"None of the items sold on A-10 orders can be obtained for replacement to our stocks at this time."

"We are not able to secure replacement or original purchase for filling of War Department orders on ratings as high as A-1-e."

* * *

III. Are You Able to Secure High Enough Ratings on Your PD-1X Forms to Secure Domestic Refrigerator Repair Materials.

22% said no. One said "about 50%" and another "60%." Following are some other replies.

"We have applied on some PD-1X forms to secure domestic refrigerator repair material. Our request was reduced better than 50%, and only an A-8 rating extended. This order is now entered with the factory, but I do not know whether we will receive the material or not."

"We have not submitted PD-1X but were advised by WPB officials that it would be impossible to obtain A-1-k or higher necessary for brass and copper products."

"Rating of A-10 received on PD-1X application has been extended for domestic controls for six weeks and this order has not been acknowledged by manufacturer to date."

"So far we have been unable to obtain anything better than an A-10 on our PD-1X forms. As you know, this is not high enough to obtain any material on."

"No. PD-1X ratings granted are inadequate."

"Have only secured one return which was presented to our suppliers with no results as yet."

"Lately no rating secured on PD-1X forms is high enough for manufacturers to ship on."

* * *

IV. Approximately How Long Will the Six Items Listed in Question I Last, as They Are on Your Shelves Now?

"30 days" was the general answer to this question.

One reply. which summed up the situation said:

"Seals—out of important numbers now; on less popular seals, at end of 60 days our stock would not help anybody. Gasket material—60 days. Expansion valves—by selling only what valves we have for emergency repair when nothing else can be done except to install a new valve, our stock will probably last 30 days; no domestic valves in stock at all. Driers—not one in stock. Commercial controls—30 days stock by using parts and substitutions. Domestic controls—completely out. Tools—90 days stock."

Another reply put this slant on it:

"Unless we begin to demand higher ratings from our trade, (which they would be unable to furnish) the items referred to under No. I will be sold in the near future. Our stock on dryers, strainers, shut-off valves, and controls is already very low. We do not have a great number of expansion valves."

How one jobber's inventory position has deteriorated on these vital supplies is told in his following report:

"It is impossible to determine how long the above mentioned supplies on our shelves will last, as our stocks of fast moving items are depleted, and remaining items consist mostly of special or less widely used materials. Book value of inventories shows 50% reduction from Jan. 1, 1942 physical inventory figures, whereas this is a seasonal business to the extent that normal figures at this time of year should be at least 150% of Jan. 1 stock."

* * *

V. What Is the Percentage of Servicemen in Your Area This Year as Compared With Last Year? 25%—50%—70%—90%

38.7% of those replying said there were 70% as many servicemen in their area this year as last.

30.1% of those replying said there were 50% as many.

12.9% said there were 90% as many.
8.6% said there were 75% as many.
4.3% said there were 60% as many.
4.3% said there were 40% as many.

* * *

VI. For the Next Three Months, What Number of Hours Per Week Will the Average Serviceman in Your Territory Work?

"Union men—44 hours. Independent—60 to 72 hours." This was the general reply to this question.

Said one reply:

"For the months of June, July, August the average serviceman will have worked 75 to 85 hours per week. (One man over July 4 holiday had four hours sleep in 48 hours.)"

"The servicemen in this territory work on the average of 16 hours per day, about 100 hours a week," stated another answer.

* * *

VII. How Serious Is the Situation in Your Territory Regarding: a) Commercial Service. b) Domestic Service. c) Both?

In almost every case, servicemen were reported concentrating on servicing of commercial installations, and letting domestic (household) service go by. Even by so doing, in some cases not all the commercial work was properly handled.

Some typical replies:

"Many household refrigerators shut down for lack of controls; many commercial installations crippled for lack of solenoid and water valves."

"a) Commercial Service. There are not sufficient servicemen to give prompt service and too much of their time is taken up trying to locate necessary parts or repair old ones. All service concerns in Denver are turning down work every day due to inability to hire additional men and obtain parts. b.) Domestic Service. Most service concerns refusing to spend time on domestic knowing that it is impossible to obtain repairs parts if needed. Several concerns have customers' refrigerators piling up in their shop, being unable to repair them because of lack of seals, expansion valves, etc."

"a) Commercial service is being handled promptly as far as is known. b). Several reports from service firms indicate that these operators are handling commercial service to the extent that they will be unable to render any domestic refrigeration service for at least another 30 days."

"a) Commercial refrigeration is in a critical situation. b). Domestic in fair condition, but getting gradually worse."

"By working overtime we have enough men, but materials most needed are difficult to get in order to keep them supplied."

"Domestic refrigerator owners are beginning to feel the pinch already, particularly from the point of quick service. The apartment houses with multiple systems are the most seriously affected right now. They have large commercial type compressors, but can get no help."

* * *

VIII. Do You Find That Your Inventory Is Decreasing in Spite of the Assistance of PD-1X and A-10 Ratings?

100% answered "yes" to this question.

"Our inventory is decreasing in spite of assistance from PD-1X and A-10 ratings to the extent that we attach no value to this type rating whatsoever towards replacing items thus sold to our stocks," was one answer.

"Our refrigeration inventory as of Feb. 28, $10,818—May 31 inventory, $4,108. It has been impossible for us to hold our inventory because of WPB cutting the amount asked for on PD-1X. We were sincere in asking for only what we needed. It looks like we made a mistake if refrigeration is really needed to preserve foods." That was the statement of another jobber.

Improve your tubing connection work by using IMPERIAL TOOLS

ANY job that is important enough in these days to warrant the use of copper tubing and brass fittings certainly deserves the very best grade of installation work. And to turn out a first class tubing connection job it is essential to have good tools and to use them.

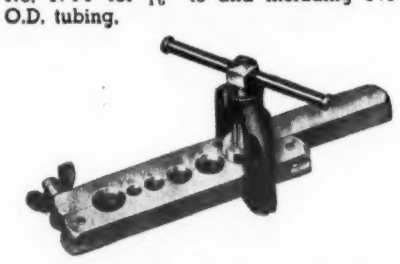
Imperial tools are so widely used for copper, steel, brass, aluminum or block tin tubing that they have become the standard of comparison in many fields. The tools shown here are just a part of the line of Imperial tools that have been developed to handle various types of work.

For your new installations and for your maintenance work use Imperial tools and improve your tubing connection work.

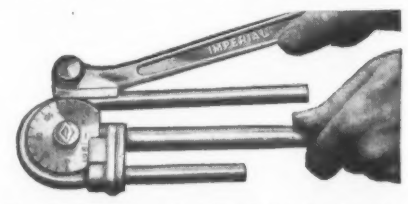
THE IMPERIAL BRASS MFG. CO.
565 South Racine Avenue, Chicago, Illinois

No. 174-F Imperial Tube Cutter for 3/16" to and including ¾" O.D. tubing. An outstanding feature is the vertical groove in the two rollers. If it is necessary to remove a cracked flare the tubing can be cut right at the bottom of flare without wasting any tubing. This often eliminates replacing the tubing or is a great help when a new tube is not available.

No. 212-F similar in construction to No. 174-F for 7/16" to and including 1⅛" O.D. tubing.

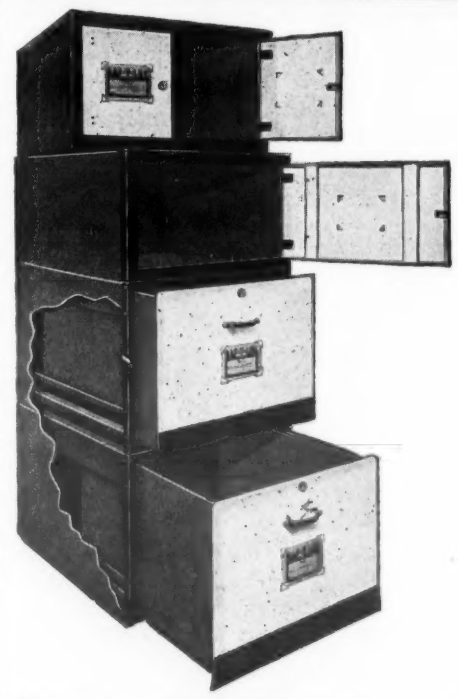


No. 93-F Imperial Flaring Tool for 3/16", ¼", 5/16", ⅜", 7/16" and ½" O.D. tubing. The Imperial Flaring Tool flares copper, brass, aluminum or plastic tubing to make up S.A.E. joints without cracking or splitting. If care is taken fair results can also be obtained in flaring Bundy steel tubing. Also other sizes for larger tubing.



No. 364-F Imperial Hand Tube Bender in seven sizes for 3/16", ¼", 5/16", ⅜", ½", ⅝" and ¾" O.D. Tubing. This smoothly operating bender forms neat, accurate bends to a short radius in a minimum of time without marring or deforming the tubing. It is a one-piece, open-side bender which slips over the tubing quickly without making adjustments and which can be used to make bends at the end or at any part of the tubing. This feature makes it especially handy in inaccessible places where tubing has been partially connected.

IMPERIAL *Refrigeration and Air Conditioning Products*



Vitamins and MASTERbuilt Lockers

Scientists, through laboratory tests, have demonstrated the value of low temperatures in holding vitamin content. Frozen foods are good sources of vitamins; and the kinds that are good vitamin sources when fresh, lose relatively little in freezing.

Vegetables particularly must be kept cool and moist. Exposure of foods to dehydration should be avoided . . . therefore, it is important that the correct lockers should be used.

MASTER Sets The Standard

Through the years, Master has not only developed but set a new standard in locker construction for sanitation, protection against odors, dehydration, etc. In addition, their flexibility of installation, savings in erection costs, etc. provide a definite saving to plant owners.

Complete details will be sent upon request. Write for them today!

MASTER Lockers are endorsed by and sold only through distributors of refrigeration and insulation.

MASTER REFRIGERATED LOCKER SYSTEMS, Inc.
121 Main St. Sioux City, Iowa

Over 300,000 Masterbuilt Lockers in Use

'Steel Scare' Leaves Everyone Up In the Air Including WPB

(Concluded from Page 1, Column 1)

lease up with the cry "bans civilian use of all steel, zinc, etc."

That some other departments of the WPB didn't believe this was demonstrated in a news story in the Sunday, Aug. 23 issue of the "New York Times," which said:

NEW YORK TIMES' STORY

"Officials of the War Production Board said today (Aug. 22) that civilian industries entitled to steel, zinc, and other scarce materials under terms of limitations orders issued by the governmental agency, will continue to obtain the quantities provided for in such orders, despite a statement yesterday that supplies would be denied to civilian industries.

"Yesterday's statement, implying a discontinuance of steel, zinc, and other scarce materials to civilian industry 'however essential the material may be to it,' was contained in a release from the Conservation and Substitution Branch of the Conservation Division of WPB. The release recapitulated the national situation in materials and divided various commercial commodities into three groups, depending upon the supplies available for military and civilian uses.

"Spokesmen at WPB today said the announcement regarding curtailment 'too strong' and emphasized the fact that the document 'was in no sense an order, nor did it change any existing regulations in the slightest.' "

PROPOSED REVISION

Then, on Aug. 25, came a proposed complete revision of the WPB handling of the steel supply, under which this key material would be strictly allocated under a system proposed by Bernard M. Baruch. Features of this plan are as follows:

1. No steel could be bought except by direct order of WPB.
2. The supply would be divided by Mr. Nelson into broad categories, for the Army, Navy, Maritime, lend-lease, and civilian uses.
3. Within its total supply, each agency, military and otherwise, would have complete authority over the split-up of the material.
4. A major division of each of the many categories of steel would be made. Urgent military items, of course, would be given precedence.
5. Before the major allocations, representatives of all the agencies needing material would present their requirements to the chief of the steel section, a job now held by Reese Taylor, in the same meeting. The Steel Chief would then weigh the respective claims, balance them against the total available supply of each type of steel demanded, and submit to Mr. Nelson a recommendation covering the entire national steel supply.

This plan is almost identical with the commodity section plan which Mr. Baruch, chairman of the World War I Industries Board, advocated before this war started in his industrial mobilization plan.

It is said that Mr. Nelson and other WPB men approve of the idea, but would like to work it into the PRP setup.

Stores May Give Up Compressors for Use In War Production

(Concluded from Page 1, Column 1)

Roebuck & Co. and chief of the conservation division of WPB, took the initiative in the drive by urging Sears to turn over its air conditioning equipment in its local department stores.

The indefinite status of the order, however, is causing both retail store representatives and the air conditioning manufacturing industry a great deal of uneasiness. When actually put into effect L-195 will require considerable change in operations of both the stores and the equipment manufacturers.

The air conditioning industry is producing equipment only on the top ratings for the Army and Navy. But if a considerable amount of equipment is to be obtained from stores it will mean raw materials will be diverted to other war uses and the industry's production sharply curtailed. One informed industry official estimated that only about 65% of the air conditioning manufacturing plant capacity now is turning out this equipment while 35% has been converted for more direct war production.

Original draft of L-195 would, it is understood, provide (1) shut down all air conditioning in retail stores, and (2) make that equipment available for purchase in the war effort by either the RFC or the conservation division of WPB which has a fund to buy up used equipment of all types.

Inquiry at WPB developed that order L-195 is "in the works" but no one is willing to say just how far it has advanced.

Before long, it is indicated, both the stores and the air conditioning industry will make open demands on the WPB that the mystery surrounding L-195 be cleared up so that those directly affected by the order will know what to look for. So far the air conditioning industry has not been consulted at all on the order.

Mr. and Mrs. Shopper will just have to take whatever discomforts they suffer as one of the sacrifices to be made in war time. Cool weather is just around the corner anyway and this particular sacrifice won't be necessary until next summer.

Installation Parts - Vital Connecting Links

Estimated Sales for Installations of New Equipment - 6 Months 1942

			Materials Used (Pounds Finished Wt.)				
Item	*Units*	*Dollars*	*Steel*	*Copper*	*Brass*	*Nickel*	*Stainless Steel*
Expansion Valves..	56,000	$304,000	58,500	11,800	63,000	0	1,625
Temperature and Pressure Controls..	17,000	102,000	23,250	6,120	4,760	1,655	401
Strainers, Dryers, Valves & Fittings...		458,000	0	306,000		0	0
Solenoid Valves....	9,000	76,000	0	2,520	10,440	0	900
Tubing*		227,700	0	758,900	0	0	0

*Includes tinned copper tubing. Figures on tin consumption not available.

Figures given above are estimates by Air Conditioning & Refrigeration News. They cover parts sold for field installations of new equipment during the first six months of 1942 and do not include sales of parts used for repair purposes. Weights given are for finished products, showing net materials consumption figures. They do not indicate excess materials used (and recovered) in producing rough parts from which the finished products indicated above were machined to final form. Significantly, many of these and other refrigeration products can be made from reclaimed scrap materials largely unsuitable for the production of military items. Practically all strainers, dryers, valves, and fittings, for example, are now made from reclaimed copper and leaded brass-scrap by-products of the virgin metals used in munitions production.

FRIENDS—

THANKS FOR WAITING

FOR THE NEW

Chicago

SEALS

WITH THE

SELF-ADJUSTING SLEEVE-LOCK

In just a few weeks, we'll begin filling orders for the new Chicago Seals. Types will be available for 90% of your needs. Service engineers will welcome their triple-seal protection for rotating shafts without the use of bellows, with nothing to crack or get out of order. And, they work perfectly on bent or scored shafts.

As you know, we've done our best to supply you during the seal shortage, and we've appreciated your patience. Now we ask your continued cooperation by ordering moderately from your jobber for current needs. And to avoid delay, be sure to include evidence of priority.

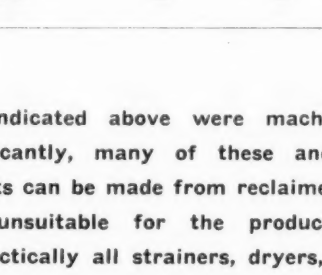
SOLD THROUGH JOBBERS

CHICAGO SEAL CO. 20 NORTH WACKER DRIVE CHICAGO, ILLINOIS

How to Prolong the Life of CURTIS REFRIGERATING EQUIPMENT

Never before has maintenance of existing equipment been as important as it is today because of the great need for the conservation of material and power.

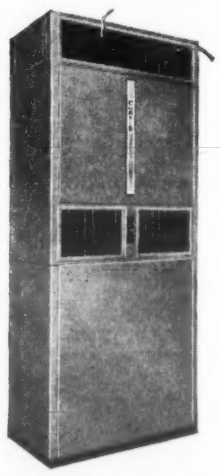
Here are some tips on how you can further extend the life of Curtis equipment:



Curtis Water-Cooled Condensing Unit

Motor Lubrication: Oil motor bearings with a good grade of light oil (viscosity 150-200) SAE-20.

Compressor Lubrication: Maintain proper oil level. If necessary to add oil, do not add all at one time. It should be added in small quantities at intervals. Use only CURTIS oil.



Curtis 3 and 5 ton Packaged Air Conditioner

Belts: Keep oil off belts and make certain that pulleys are in alignment and that belt is adjusted to proper tension.

Refrigerant Requirements: Use only refrigerant specified on unit nameplate. Do not overcharge.

Electrical Specifications: Be certain that motor is connected to correct current. Check nameplate on motor and controls. For overload protection use line fuses of proper rating—three times the full load amperage rating of motor as shown on motor nameplate.

Location: Air-cooled units should have free circulation of cool air. Water-cooled units should be installed where they will not be subject to freezing temperatures.

User Instructions: Instruct the user in the care and operation of this unit—how to oil motor and replace fuses. Have your name, address, day and night telephone numbers posted near the unit.

Announcing

New Policy on Repair Parts

In line with conservation of vital material and at the request of the War Production Board, the following policy is announced:

1 Before an order can be filled for a replacement part, the old part must be returned to the factory, transportation charges prepaid.

2 If equipment is in the warranty period and requires replacement, return the old part with complete information as to model and serial number, and reason for replacement. A new or reworked part will be shipped, no charge, if part returned is defective.

3 If equipment is out of the guarantee period, make every effort to have it repaired locally. If this is not possible, return part to the factory with order. Replacement will be shipped as soon as possible.

4 Furnish priority rating and allocation classification symbol with ALL orders. Include instructions for shipping.

The cooperation of dealers will help assure delivery of repair parts.

CURTIS REFRIGERATION AIR CONDITIONING AND COMMERCIAL

CURTIS REFRIGERATING MACHINE DIVISION

of Curtis Manufacturing Company

1912 Kienlen Avenue, St. Louis, Missouri

★ ★ CONSERVE METAL, BUY WAR BONDS AND STAMPS ★ ★

CLASSIFIED ADVERTISING

RATES for "Positions Wanted," 5¢ per word; minimum charge, $2.50. Three consecutive insertions, 12½¢ per word; minimum charge, $6.25.

RATES for all other classifications, 10¢ per word, minimum charge, $5.00 per insertion. Three consecutive insertions, 25¢ per word, minimum charge, $12.50.

ADVERTISEMENTS set in usual classified style. Box addresses count as five words, other addresses by actual word count.

EQUIPMENT FOR SALE

COMMERCIAL COILS without priority ratings. Fedders and Peerless coils, finned and finless. Dry expansion and flooded evaporators. Plate coils and flash pans. MARCO SALES CO., 595 6th Ave., New York City.

POSITIONS AVAILABLE

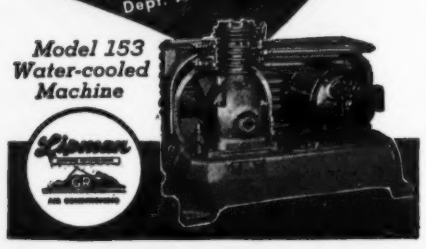
SERVICEMAN needed who is an experienced refrigeration mechanic. Good pay. Write, giving details as to experience. BRIDGEPORT REFRIGERATION SERVICE, 1459 Stratford Ave., Bridgeport, Conn.

REFRIGERATOR SERVICEMAN:. Position available in Northern Ohio for commercial man with low pressure experience. Good salary and car allowance. State qualifications in first letter. Include photograph if available. Box 1405, Air Conditioning & Refrigeration News.

SERVICE MAN WANTED—minimum of five years experience, two of which on commercial, preferably with car. Good salary guaranteed, no winter layoffs. Write full particulars concerning experience, references, age, marital status, and salary expected. Recent photograph requested. GIBSON & PORTERFIELD, 3613 Georgia Ave., Northwest, Washington, D. C.

AMINCO OIL SEPARATORS
1-3 h. p. to 120 Tons
American Injector Company
1481 14th Avenue, Detroit, Mich.

The Machine For Your Next Job...
If it's a refrigeration job ...no matter how big or how small...we can supply Lipman equipment to fit the specifications. Let us work with you.
GENERAL REFRIGERATION DIVISION
Yates-American Machine Co.
Dept. AC-3, Beloit, Wis.



Gilmer BELTS

With refrigeration and air conditioning becoming increasingly important to war industries, there's more room than ever for the quick, efficient service man.

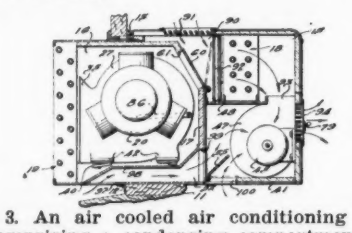
That's where Gilmer Belts can help you. Their long life and hefty pulling power add up to customer satisfaction and good-will. Since they're still available, you can depend on Gilmer Belts to stand by you through the war-time trials ahead.

L. H. GILMER COMPANY
TACONY, PHILADELPHIA, PA.

PATENTS

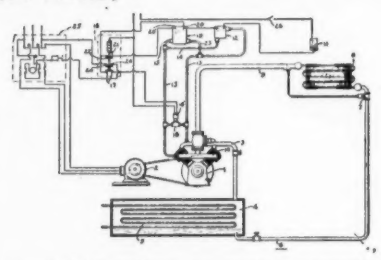
Weeks of July 28 & Aug. 4

2,290,973. AIR CONDITIONING UNIT. Bernard W. Jewell, Dayton, Ohio, assignor to Chrysler Corp., Detroit, Mich., a corporation of Delaware. Application Nov. 13, 1939, Serial No. 303,968. 4 Claims. (Cl. 62—140.)



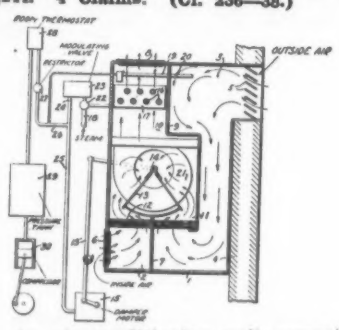
3. An air cooled air conditioning unit comprising a condensing compartment, an evaporating compartment, a condenser blower and condenser blower motor in said condensing compartment, an evaporator blower and evaporator blower motor in said evaporating compartment, an air cooling coil in said evaporating compartment, a partition between said compartments, an exhaust damper associated with said partition which when closed causes air movement induced by said evaporator blower motor to traverse said coil and when open permits air movement induced by said evaporator blower motor to flow through said condensing compartment, and a circuit for controlling said motors comprising a first branch for supplying power to said evaporator blower motor and a second branch in parallel with said first branch for supplying power to said compressor motor, a control switch in series with both branches which when opened suspends operations of both said compressor motor and said evaporator blower motor, a second switch in said second branch which, when opened while said control switch is closed, suspends operation of said compressor motor and thus permits said evaporator blower motor to operate independently of said compressor motor, and an exhaust damper switch in said second branch and in series with said second switch, said exhaust damper switch being operatively connected to said exhaust damper to be opened thereby when said exhaust damper is opened whereby opening of said exhaust damper suspends operation of said compressor motor even though said second switch may be closed.

2,290,984. REFRIGERATING APPARATUS. William J. McCoy, Jr., Kearny, N. J., assignor to Worthington Pump & Machinery Corp., Harrison, N. J., a corporation of Delaware. Application Dec. 18, 1941, Serial No. 423,457. 9 Claims. (Cl. 62—115.)



1. Refrigerating apparatus comprising an evaporator, a condenser, and a compressor receiving refrigerant from the evaporator and discharging it under pressure into the condenser thereby providing high and low pressure sides in the refrigerating cycle, means responsive to the temperature produced by the evaporator for stopping and starting the compressor, means responsive to said temperature responsive means for opening communication between said high and low pressure sides to equalize the pressure therein, and means active upon equalization of the pressure in the high and low pressure sides to cut off communication between said high and low pressure sides.

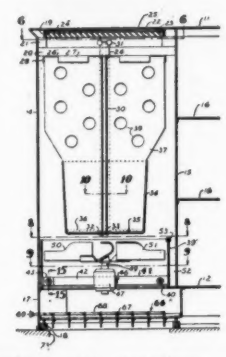
2,290,985. AIR CONDITIONING UNIT. John McElgin, Philadelphia, Pa., assignor to John J. Nesbitt, Inc., Philadelphia, Pa., a corporation of Pennsylvania. Application Feb. 21, 1940, Serial No. 320,144. 4 Claims. (Cl. 236—38.)



3. An air conditioning unit comprising a source of heat and a damper which admits predetermined quantities of recirculated air and fresh air to said unit, means comprising a single unit thermostat having a plurality of members of different heat expansion coefficients, said members being directly exposed to the source of heat and to said fresh air for controlling said source of heat and said damper.

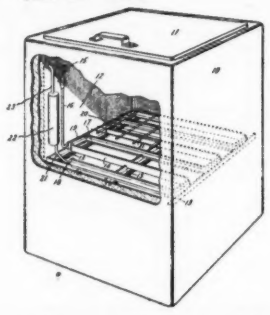
2,291,252. AIR CONDITIONER. William A. Norris, Alhambra, Calif., assignor to Otto K. Schuenke, Los Angeles, Calif. Application April 9, 1941, Serial No. 387,573. 1 Claim. (Cl. 261—30.)

In an evaporative cooler, a cabinet having a bottom, a top, spaced sides, a back, and a hinged front, said top having an opening therein, a bracket secured to each corner of said cabinet, a louvre member in said opening and supported by said bracket immediately below said louvre member, a cruciform member, said cruciform member having depending flanges thereon supported on said brackets, a hub at the center of said cruciform member, a rod centrally suspended from said hub, a container secured to the lower end of said rod, a plurality of porous absorption members having their lower ends extending into



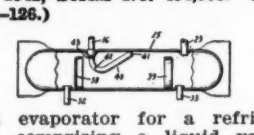
and engaging said container, a pair of intersecting strips below said cruciform member, said strips having depending flanges thereon and having apertures receiving said rod, said absorption members being engaged at the top thereof by said flanges, said flanges engaging the sides and outermost ends of said absorption members, said supporting strips being secured to said rod, a motor in said cabinet below said container, said motor having an aramture shaft, a fan mounted on said armature shaft, an opening in said cabinet bottom and means to close said opening.

2,291,362. REFRIGERANT EVAPORATOR. Roman C. Warneke, Fort Wayne, Ind., assignor to General Electric Co., a corporation of New York. Application Sept. 16, 1941, Serial No. 410,977. 11 Claims. (Cl. 62—126.)



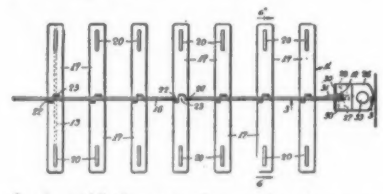
1. A cooling unit for refrigerating machines including a refrigerant vaporizing conduit, a fixed restrictor for controlling the admission of refrigerant to said conduit, a vapor connection for removing vaporized refrigerant from said conduit, a liquid and vapor separating header between said conduit and said vapor connection, said conduit having a portion thereof extending through said header and opening into the upper portion of said header and a restricted opening providing communication between the lower portion of said header and said conduit for affording drainage of liquid refrigerant from said header back into said conduit.

2,291,363. REFRIGERANT EVAPORATOR. Leonard W. Atchison, Schenectady, N. Y., assignor to General Electric Co., a corporation of New York. Application Aug. 1, 1941, Serial No. 404,963. 9 Claims. (Cl. 62—126.)



1. An evaporator for a refrigerating machine comprising a liquid vaporizing section and a header in communication therewith, a connection for admitting liquid refrigerant to said vaporizing section, and a suction conduit entering said header and opening into the upper portion thereof and having a portion extending downwardly in said header, said conduit having two restricted apertures therein the first at substantially the same level as the open end of said conduit and the second adjacent the lowermost part of said downwardly extending portion, said restricted apertures being so located that liquid refrigerant is metered into said suction conduit through said second aperture during the normal withdrawal of vaporized refrigerant and so that the pressures of vaporized refrigerant within said header and within said suction conduit are substantially equalized through said first aperture regardless of the accumulation of liquid refrigerant in said header during the inactive period when vaporized refrigerant is not being withdrawn from the evaporator.

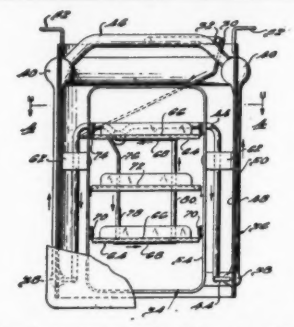
2,291,437. ICE TRAY GRID. Sven W. E. Andersson, Evansville, Ind., assignor to Servel, Inc., New York, N. Y., a corporation of Delaware. Application April 19, 1940, Serial No. 330,455. 5 Claims. (Cl. 62—108.5.)



1. A grid for use in an ice tray, comprising a longitudinal partition, a series of single-walled cross partitions forming a grid assembly with said longitudinal partition, a slide rod along the upper edge of said longitudinal partition, and means responsive to the slide movement of said slide rod along the upper edge of said longitudinal partition to sinuously flex said single-walled cross partitions.

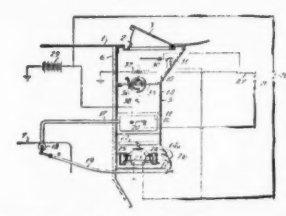
2,291,446. HEAT TRANSFER. Samuel E. Bickle, Highland Park, Mich., assignor to Borg-Warner Corp., Chicago, Ill., a corporation of Illinois. Application March 4, 1939, Serial No. 259,752. 4 Claims. (Cl. 62—126.)

3. Refrigerating apparatus including an evaporator having a plurality of sections arranged so as to be supplied with liquid refrigerant in series, one of said sections comprising a vertical wall having a refrigerant passageway thermally associated therewith, and the other of said sections comprising a horizontal wall having a refrigerant passage thermally associated therewith, said vertical wall arranged in the shape of a U being open at the top and bottom, the periphery of said horizontal wall being spaced inwardly of said vertical wall so as to permit air



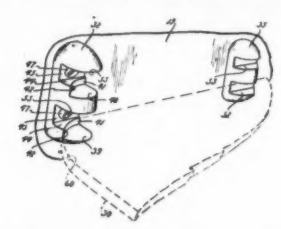
to circulate over both sides of said vertical wall throughout the entire extent thereof.

2,291,543. AUTOMOBILE AIR CONDITIONING SYSTEM. Howard J. Findley, Shaker Heights, Ohio, assignor to Eaton Mfg. Co., Cleveland, Ohio, a corporation of Ohio. Application Jan. 11, 1941, Serial No. 374,031. 6 Claims. (Cl. 237—2.)



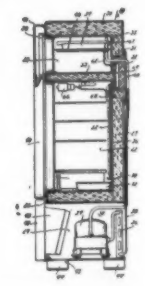
4. In a vehicle passenger compartment air-tempering and ventilating structure having a fresh air supply element, a heat-exchange element, an air impelling element adjacent thereto arranged to move air therethrough including a battery energizing means, and a casing integrating said elements for delivery of conditioned air to the passenger compartment; the combination with an electrical control circuit including said battery energizing means, said air impelling element and a windswitch, said windswitch in said circuit disposed in said fresh air supply element and responsive to pressure therein for effecting operating of said air impelling element, of a damper valve in said casing between said windswitch and heat-exchange element arranged to close off communication of air thereto, a thermo-responsive element, said thermo-responsive means connected in series in said circuit and operative above a selected temperature of a heat-exchange medium to effect operation of said damper valve and windswitch, whereby upon said thermo-responsive means being rendered operative said damper valve is caused to open to permit air to be heated to move through said heat-exchange element to the passenger compartment, said windswitch normally interrupting the electrical circuit to said air impelling means when adequate airflow is supplied to the heat exchanger above a selected vehicle speed, and thermostatic means in said circuit located in the passenger compartment operative automatically above selected air temperatures for interrupting current flow to the air impelling means.

2,291,547. REFRIGERATING APPARATUS. Whitney Giffard, Detroit, Mich., assignor to Nash-Kelvinator Corp., Detroit, Mich., a corporation of Maryland. Application Dec. 5, 1940, Serial No. 368,650. 2 Claims. (Cl. 312—156.)



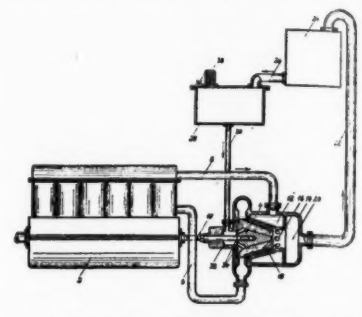
1. Cabinet construction comprising an inner wall, a shelf having a rounded corner positioned in said cabinet, a supporting member having a horizontal support for said shelf carried by said wall to support said shelf in sliding relation to said wall and a second support capable of supporting said shelf in either slidable or non-slidable relation to said wall, said support having a horizontal ledge to permit said shelf to be slid relative to said wall and a second ledge bounded by a vertical wall of substantially the same contour as an inner portion of said rounded corner for receiving the rounded corner of said shelf to support said shelf in non-sliding relation to said wall.

2,291,559. REFRIGERATING APPARATUS. Lawrence A. Philipp, Detroit, Mich., assignor to Nash-Kelvinator Corp., Detroit, Mich., a corporation of Maryland. Application Dec. 12, 1940, Serial No. 369,716. 4 Claims. (Cl. 62—116.)



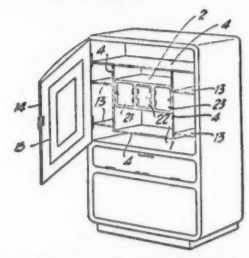
1. Refrigerating apparatus comprising, in combination, an insulated cabinet having means dividing the interior of same into two compartments, said cabinet having an opening through a wall thereof opening into both of said compartments, insulating means removably mounted in said opening, a plate type refrigerant evaporator disposed in one of said compartments between top and bottom thereof to provide a rapid freezing support for a receptacle on its upper surface and a storage space therebelow, a vertically disposed plate type evaporator located in the other of said compartments adjacent the rear wall thereof for maintaining proper food preserving temperatures therein, a refrigerant condensing element located exteriorly of said compartments and operatively connected with said evaporators through said insulating means, and restricting means disposed in said removable insulating means for maintaining a temperature differential between said evaporators, said evaporators, removable insulating means and condensing element being removable bodily as a unit from said cabinet.

2,291,656. COOLING SYSTEM. Alfred Scheibe, Dessau-Ziebigk, Germany, assignor to Junkers Flugzeug-und-Motorenwerke Aktiengesellschaft, a corporation of Germany. Application March 29, 1940, Serial No. 326,795. In Germany Feb. 25, 1939. 4 Claims. (Cl. 123—174.)



4. A cooling system for an internal combustion engine comprising an engine-driven combined pump and steam and water separator, a condenser joined to said separator for receiving separated steam, a pressure tank joined to said condenser for receiving condensate and excess steam from said condenser, means for conducting condensate from said tank to said pump, and a baffled passage between the interior and exterior of said tank; a vessel enclosing said tank, and valve means for providing communication between the interior said tank and the atmosphere whereby the equalization of pressure between the interior of said tank and the atmosphere is retarded.

2,291,736. REFRIGERATOR CABINET. Erik David Lindblom, Finspong, Sweden. Application May 29, 1941, Serial No. 395,889. In Sweden July 13, 1940. 18 Claims. (Cl. 62—89.)



1. In a device of the character specified, the combination of a cabinet, or room, an inner compartment therein, a refrigerating unit in said compartment, and a set of other compartments for receiving goods to be cooled, said other compartments being so arranged between said inner compartment and the walls of the cabinet, or room, as to follow upon each other in series so as to hold tempera-

(Concluded on Page 23, Column 1)

Seamless PENN BRASS and COPPER TUBING
PENN BRASS & COPPER CO. ERIE, PENNA.

CHARGED DAVISON'S SILICA GEL IN WITH OUT — Specify DRYERS THAT BEAR THIS LABEL
Ask your Jobber

HEAT TRANSFER EQUIPMENT
MARLO COIL COMPANY
SAINT LOUIS, MISSOURI

COOLMASTER
"The Product Cooler of Tomorrow"
KRAMER TRENTON Co.
Heat Transfer Products
TRENTON, N. J.

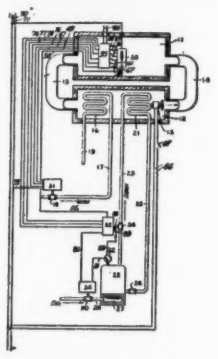
KEROTEST
REFRIGERATION VALVES AND FITTINGS
Serve at Sea
KEROTEST MANUFACTURING CO.
PITTSBURGH, PA.

Patents (Cont.)

(Concluded from Page 22, Column 5)

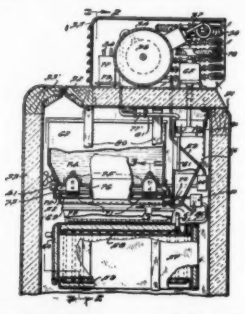
tures gradually varying from said inner compartments towards the walls of the cabinet, or room.

2,291,769. AIR CONDITIONING APPARATUS. Donald G. Smellie, Canton, Ohio, assignor to The Hoover Co., North Canton, Ohio, a corporation of Ohio. Application Jan. 13, 1938, Serial No. 194,755. 14 Claims. (Cl. 257—3.)



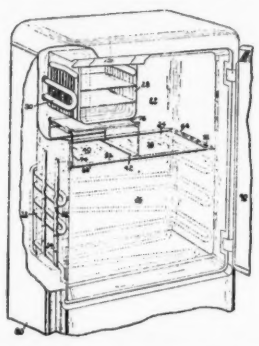
1. Temperature regulating mechanism comprising a modulating control coil, a plurality of modulating devices, movably mounted modulating control means associated with said modulating coil, temperature responsive means connected to operate said movably mounted means, switching mechanism connected to cause one or the other of said modulating means to be operatively connected to said modulating coil means when said movably mounted control means moves to either limit of a predetermined temperature differential, and means for adjusting the temperature range of said modulating control means without affecting the temperature differential between said modulating control means and said switching mechanism.

2,291,826. REFRIGERATING MECHANISM. Glenn Muffly, Springfield, Ohio. Original application July 30, 1934, Serial No. 737,485. Divided and this application April 7, 1938, Serial No. 200,736. 21 Claims. (Cl. 62—8.)



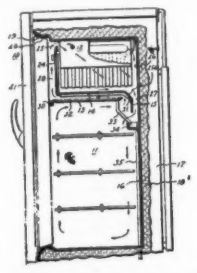
1. In combination, a refrigerator cabinet, a refrigerating system arranged to cool said cabinet, a sharp freezing chamber within said cabinet and insulated to reduce heat exchange with the interior of said cabinet, means associated with said sharp freezing chamber and with sad system for cooling the sharp freezing chamber, means within said cabinet including an element forming a part of said system and cooled by said system for cooling the air in said cabinet outside of said sharp freezing chamber, and automatically operable means for periodically defrosting said last named means while the temperature within the sharp freezing chamber is maintained at values lower than freezing temperatures.

2,292,015. REFRIGERATING APPARATUS. Edmund F. Schweller, Dayton, Ohio, assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application Sept. 26, 1940, Serial No. 358,486. 2 Claims. (Cl. 62—89.)



1. Refrigerating apparatus including a cabinet having walls defining a chamber therein, means dividing the chamber into an upper and a lower compartment, an evaporator of a closed primary refrigerating system disposed within said upper compartment and normally maintained at a temperature below that at which water freezes for maintaining the air therein at a low relative humidity, a closed secondary refrigerating circuit located within said cabinet and including a refrigerant condensing portion disposed in heat exchange relationship with said primary evaporator and a refrigerant evaporating portion disposed in heat exchange relationship with said lower compartment, said evaporating portion of said circuit being normally maintained above water freezing temperatures for cooling said lower compartment and for maintaining the air therein at a higher relative humidity with respect to the low relative humidity of the air within said upper compartment, said means being provided with openings adjacent opposite edges thereof and another opening intermediate its edges positioned below an edge of said evaporator for permitting ventilation between said compartments, said means being substantially imperforate intermediate the openings therein, and means for selectively closing at least said intermediate opening.

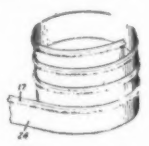
2,292,032. REFRIGERATOR CABINET. Leonard W. Atchison, Schenectady, N. Y., assignor to General Electric Co., a corporation of New York. Application July 1, 1941, Serial No. 400,589. 3 Claims. (Cl. 62—89.)



1. In a refrigerator cabinet having a food storage compartment, an access opening to said compartment and a door member for closing said opening, an evaporator of the type having an opening in the front wall thereof and a door for closing said opening, said evaporator also being adapted to be operated at a relatively low temperature for cold storage and the like and also being disposed in the upper portion of said compartment and extending substantially the full width thereof but being spaced from said compartment door and the rear wall of said compartment, the top of said evaporator door being spaced from the top wall of said compartment, a pair of vertically spaced-apart, substantially horizontal, baffle members adjacent and below said evaporator, the upper member extending laterally the full width of said compartment and rearwardly from said evaporator door, the rear edge portion thereof being provided with a downwardly extending portion spaced from said rear wall, the lower member extending laterally the full width of the compartment and rearwardly from immediately adjacent the compartment door, the rear edge thereof being disposed forwardly of said downwardly extending portion, whereby warm air rising along the compartment door will be directed rearwardly by the lower member, upwardly and forwardly between the members, upwardly between the compartment door and the evaporator door, over the top of said evaporator door and rearwardly and downwardly across said evaporator in thermal association therewith, the cooled air descending downward through the space between the downwardly directed portion and the rear wall of said storage compartment.

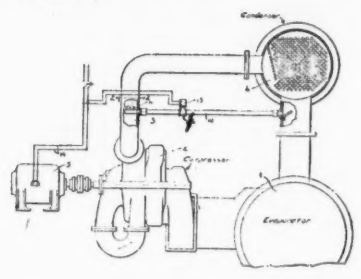
2,292,433. REFRIGERANT CONDENSER AND METHOD OF FORMING SAME. Leonard W. Atchison, Schenectady, N. Y., assignor to General Electric Co., a corporation of New York. Application Aug. 1, 1941, Serial No. 404,964. 7 Claims. (Cl. 113—118.)

1. A heat exchange element for a refrigerating machine comprising a helically wound strip of sheet metal having its adjacent edges overlapping, at least one of said overlapping edges being formed with an elongated corrugation providing a passageway for fluid between said adjacent edges and extending helically about said element, said edges being bonded together on both sides of said corrugation to seal said passageway and to provide a rigid structure.



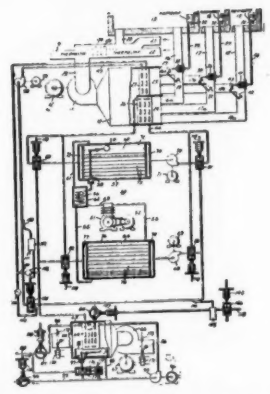
3. The method of manufacturing from a metal strip a condenser for a refrigerating machine which comprises, forming a corrugation along one edge of the strip, winding the strip helically in a substantially cylindrical form with the concave side of said corrugation overlapping the adjacent portion of the other edge of the strip, and welding the edges of the strip together along both edges of said corrugation to form a continuous helical passageway for fluid.

2,292,259. REFRIGERATION SYSTEM. Joseph R. Zwickl, East Orange N. J., assignor to Worthington Pump & Machinery Corp., Harrison, N. J., a corporation of Delaware. Application Feb. 15, 1941, Serial No. 379,067. 3 Claims. (Cl. 62—115.)



1. In a refrigerating system in which a volatile refrigerant is vaporized, the vapor compressed, and the compressed vapor condensed and returned to be again vaporized, the combination with a condenser, a compressor, and a connection between the compressor and condenser for delivering compressed vapor to the condenser, of a conduit for receiving a limited quantity of liquid refrigerant from said condenser and spraying it into the compressed refrigerant vapor after the vapor has been fully compressed and prior to its entrance into the condenser, a valve in said conduit, and means operated upon starting and stopping of the compressor for operating said valve.

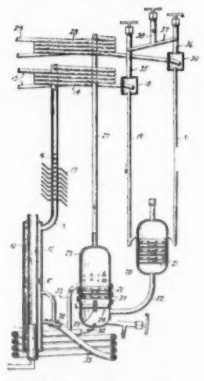
2,292,335. AIR CONDITIONING APPARATUS. Stephen A. Durbin, Philadelphia, Pa. Application Aug. 27, 1941, Serial No. 408,444. 12 Claims. (Cl. 257—3.)



1. Apparatus for heating and cooling the air in a plurality of enclosures comprising a refrigerating machine, means providing two air circulating paths, means for circulating air though said paths and into said enclosures, said means being so arranged that each of said enclosures may receive air from both said paths, a heat transfer element arranged in one of said paths, means for selectively connecting said element to receive heating or cooling medium from said refrigerating machine, a heat transfer element in the other of said paths, and means dependent upon a condition of the air in at least one of said enclosures for connecting said last mentioned heat transfer element to receive from said refrigerating machine heating or cooling medium of the opposite temperature characteristic from that selected to be supplied to said first mentioned heat transfer element.

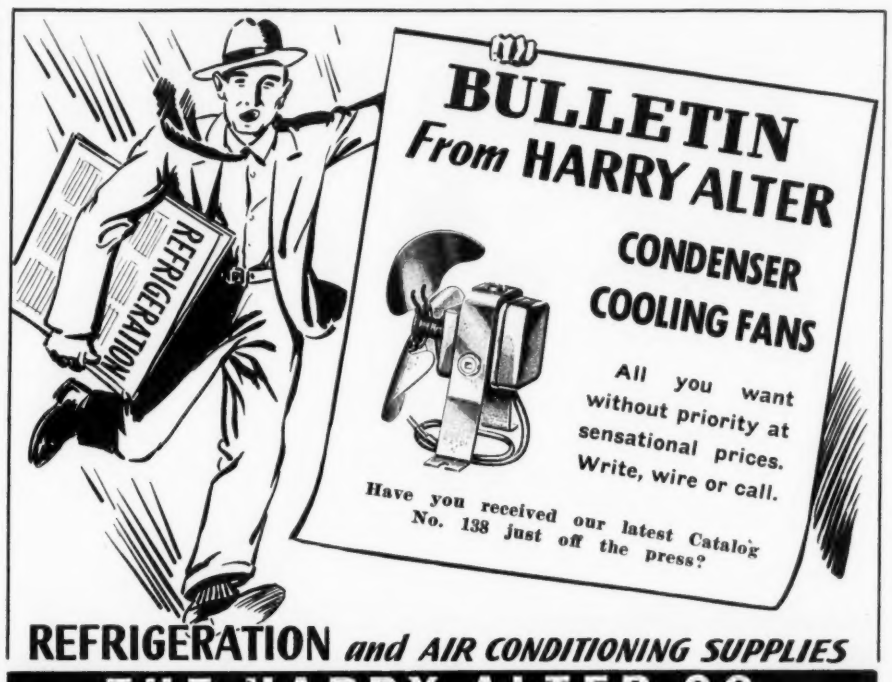
REISSUE

22,153. REFRIGERATION. Alvar Lenning, Stockholm, Sweden, assignor, by mesne assignments, to Servel, Inc., Dover, Del., a corporation of Delaware. Original No. 2,199,077, dated April 30, 1940, Serial No. 640,583, Nov. 1, 1932. Application for reissue May 19, 1942, Serial No. 443,606. 50 Claims. (Cl. 62—119.5.)



1. Refrigerating apparatus adapted to produce cooling effect by the evaporation of ammonia and propane including an evaporator in which said ammonia and propane may simultaneously evaporate, an absorber in which the ammonia may be absorbed by an absorption liquid, means for cooling the lower portion of the absorber, and means for heating the upper portion of the absorber to vaporize liquid propane therein.

THE BUYER'S GUIDE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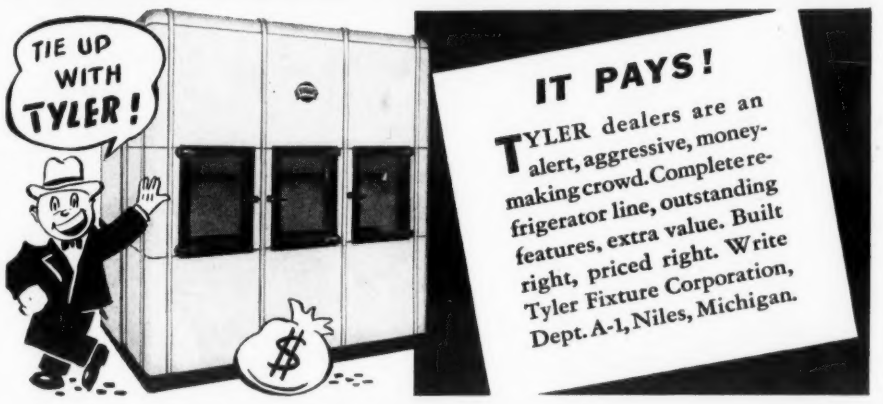
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Jobber and Manufacturer Describe Some Of Obstacles That Prevent Repair Parts From Reaching Field at Present Ratings

(Concluded from Page 1, Column 3)

the containers. On the first two applications an A-3 was assigned. Upon contacting the Chief of the Distributors Branch, we were advised to reapply on our PD-1X giving source of supply, etc. We did this and received a complete denial of priority assistance. The Chief of the Distributors Branch stated that no priority was necessary.

EXPERIENCE WITH PD-1X

"We could go down the entire list of PD-1X items that we have applied for and cite case after case where detailed explanation of the priority necessary, as demanded by our supplier, was outlined in our letter of application, but still the highest priority issued to us was an A-3.

"We are in receipt of a letter from our jobber's association asking us to comment on how PD-1X is working; whether it works to our satisfaction or not. It definitely has not worked to our satisfaction. In fact, our inventory has been going down until today we are working with about 25% of our usual inventory, and our back orders are beginning to pile up due to the necessity of applying two or three times for the proper priority to get materials.

"Upon receipt of PD-1X application blanks with priority allotted by WPB in which the priority is not sufficiently high enough to secure shipment from our manufacturers, we immediately write a letter to the WPB and one comes back saying that it is impossible to reprocess a PD-1X application blank after priority has been assigned, and that new application must be filed for new priority.

"Certainly the people that sign these ratings should learn about the restrictive orders by other departments so that sufficiently high priority ratings would be assigned in the first place."

MANUFACTURERS' VIEWS

The valve and controls manufacturer gives a detailed explanation of how restrictive orders governing metals supply serves to nullify the ratings for refrigeration parts:

"About April 1 this year we received notice of Amendment No. 1 to Chromium Limitation Order M-21-d, which was effective as of March 27, 1942. By its terms, no one is permitted to fabricate stainless steel after March 27 except to fill an order rated A-1-k or higher. Another exception permits the sale of articles that are fully fabricated as of that date. This last exception made it possible for manufacturers to sell stocks on hand in filling A-10 orders, but after those stocks were exhausted it was not possible to fill orders without an A-1-k rating.

"As your publication recently stated, this meant that order P-126 did not give sufficiently high ratings to insure delivery of repair parts. We foresaw this months ago, and appealed from the provisions of the Chromium order to WPB. They finally granted us permission to use 250 pounds of stainless steel for repair parts for the period up to Sept. 1, with the express provision that none of it was to be used in new valves, but only in repair parts. This permission was obtained after a great deal of expense on our part, and only after we had received fine support from Messrs. Sterling Smith and A. H. Keeler of the Refrigeration Branch, who helped our appeal through the Iron and Steel Branch.

REPAIRS INCREASING

"Obviously 250 pounds of stainless does not go very far, and faced with increasing amounts of repair orders (because of inability to get new valves) we were soon unable to fill even orders for repair parts rated under P-126. Of course, new valves were out of the question on P-126 rated orders. All this was explained to our customers in form letters, phone calls, etc., and they received it as well as could be expected.

"Unfortunately, some over-zealous and uninformed personnel of the Refrigeration Branch—as well as some of the local WPB offices—have been telling the trade that the manufacturers 'cannot refuse to accept a rated order, per authority of Priorities Regulation No. 1.' This has caused confusion and resentment, as it gives the impression that the manufacturer could fill the low-rated order if he wanted to, but that he is arbitrarily passing it up for higher rated orders. Nothing could be further from the truth, and it reflects unjustly on every manufacturer of valves, controls, etc., to pass out this false information from ostensibly official sources.

"Technically, these misguided 'experts' may be correct—we cannot 'refuse' the order—BUT we cannot fill it, which amounts to the same thing. Someone made this same point in your last issue.

"The fact is that our industry does not have a decent rating for repair parts. In contrast, P-118 gives the dairy industry an A-1-a rating on emergency repair parts. We are only kidding ourselves with a rating of anything less on critical materials—ask any mill making metals.

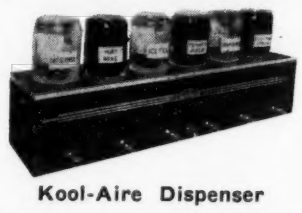
"I suggest that local WPB offices and officials in our own Branch look thoroughly into the practical as well as the theoretical interpretations of rulings before passing out misleading information. In many cases our own Branch is simply passing the buck and trying to avoid processing PD-1a applications. They are swamped with them, we admit, but only because they have allowed an obsolete P-126 to stand. In contrast, P-118, which was written at the same time, was amended to give A-1-a ratings on repairs.

"We may as well accept the fact the situation will become worse as manufacturers are not being allocated sufficient metals to fill A-1-a ratings on repairs.

"There is no point in raising false hopes as WPB has done, and no point in causing bad trade relations. The manufacturers should not be penalized for devoting themselves to the business of winning the war."

Beverage Dispenser Is Used To Fill Out Line

YOUNGSTOWN, Ohio — Several commercial refrigeration distributors are using the Kool-Aire cooler and dispenser display cabinet for juices, wines, carbonated beverages, etc., not only as their main merchandise item, but also as a sales leader for new types of accounts, according to M. Murray Fibus of Steel City Mfg. Co., producers of this item.



Kool-Aire Dispenser

The Kool-Aire dispenser comes in 2, 3, 4, and 6 gal. units of all steel construction, with baked-on enamel finish. It is designed to be refrigerated by cracked ice, but can be easily converted to mechanical refrigeration.

This product is sold to drug stores, 5-and-10 stores, roadside stands, canteens, restaurants, dairy stores, and taverns (for wines). Because of the fact that it has an application in so many kinds of stores, it is a useful "door opener" for the commercial refrigeration company.

Practically any gallon jug will fit the compartment. Spigots are plated outside and block tinned inside. Rock wool insulation is used in the cabinet.

Keefe, Oberc Organize War Materials Exchange

(Concluded from Page 1, Column 5)

both manufacturing and jobbing set-ups, and will combine his knowledge with Mr. Oberc's extensive jobbing experience.

Mr. Oberc, although a partner in the Exchange, will continue to devote his major efforts to his refrigeration parts jobbing business in Detroit.

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